2021-2022

This booklet contains practice tests and rules for

Art (grades 7-8)
Calculator Applications (grades 6-8)
Chess Puzzle (grades 6-8)
Dictionary Skills (grades 7-8)
Editorial Writing (grades 7-8)
Impromptu (grades 7-8)
Listening Skills (grades 7-8)
Maps, Graphs & Charts (grades 7-8)
Mathematics (grades 6-8)
Number Sense (grades 7-8)
Ready Writing (grades 7-8)
Science (now grades 6-8)
Social Studies (grades 7-8)

Duplicate materials as needed. For contest rules, refer to the A+ Handbook or UIL website.

JUNIOR HIGH ACADEMIC STUDY MATERIALS BOOKLET

www.uiltexas.org/aplus

UNIVERSITY INTERSCHOLASTIC LEAGUE

* Updated answer sheets for applicable events are included.

CONTESTANT NUMBER:

NOTE: Contestants are required to list only the artist's last name (as it appears on the Official List) for Part A. However, there is ***no penalty*** *if contestants also list the artist's first name. Scoring is based on correctness of the artist's last name and the title of the work.*

FOR GRADER USE ONLY
Score Test Below:

_____ out of 60. Initials_____

_____ out of 60. Initials_____

Papers contending to place:

_____ out of 60. Initials_____

**To calculate final score, add Part A and Part B together.*

University Interscholastic League
A+ Art Contest Part A • Answer Sheet

Write your contestant number in the upper right corner, and circle your grade below.

Circle Grade Level: 4 5 6 7 8

	ARTIST	PAINTING
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		

CONTESTANT NUMBER:

FOR GRADER USE ONLY Score Test Below: _____ out of 60. Initials_____ _____ out of 60. Initials_____ **Papers contending to place:** _____ out of 60. Initials_____ **To calculate final score, add Part A and Part B together.*	**University Interscholastic League** **A+ Art Contest Part B • Answer Sheet**

Write your contestant number in the upper right corner, and circle your grade below.

Circle Grade Level: 4 5 6 7 8

Art Elements

1._____

2._____

3._____

4._____

5._____

6._____

7._____

8._____

9._____

10. True False

11. True False

12. True False

13. True False

14. True False

15. True False

Art History

16. _____

17. _____

18. _____

19. _____

20._____

21. _____

22. _____

23. _____

24. _____

25. True False

26. True False

27. True False

28. True False

29. True False

30. True False

2021-2023 Art Study Test 1 - Grades 7-8
Art Elements

1. The different kinds of brushstrokes used in *Mounted Trumpeters of Napoleon's Imperial Guard* help to
   a. focus attention on the trumpeters.
   b. keep viewers' eyes moving through the image.
   c. create a sense of depth in the painting.
   d. provide visual unity.

2. Red and blue are examples of _____ colors.

3. In *The Small Cowper Madonna*,
   a. Mary's scarf is the same color as Jesus' shirt.
   b. Mary's gown is the only warm color in the painting.
   c. the darkest part of the canvas is the upper background.
   d. Mary and Jesus are not looking at each other.

4. The artist used _____ to draw viewers quickly into the image of *Portrait of Michol (Miguel Pol?)*.

5. Horizontal lines are least important to the composition of
   a. *Oarsmen at Chatou*.
   b. *Estuary at Day's End*.
   c. *Dalet Kaf*.
   d. *Old Faithful Geyser, Yellowstone National Park*.

6. In *A Dutch Courtyard*,
   a. the closed door at the back of the courtyard helps create the sense of a protected place.
   b. the child standing near the table is almost the same height as the seated gentlemen.
   c. the brightest colors in the painting are in the men's coats.
   d. the curved lines of the trees in the background are a contrast to most of the other lines in the painting.

7. Which of these techniques for creating perspective is most important in *Rainy Midnight*?
   a. painting more distant objects smaller than closer ones
   b. using warm colors in the foreground but not in the background
   c. painting softer edges for objects that are farther away
   d. using paler colors in the background

8. _____ is an example of a painting created with tempera.

9. In which of these landscapes does light shine into the painting from the background?
   a. *Estuary at Day's End*
   b. *Mountains at Collioure*
   c. *Old Faithful Geyser, Yellowstone National Park*
   d. *New York at Night*

True/False

10. The term canvas may be used to refer to a painting or to the type of surface on which the painting is created.

11. The appearance of the brushstrokes in *Anton Francesco degli Albizzi* suggests the surface of the painting is roughly textured.

12. The way the artist has painted light and shadow in *Haystack Mountain, Vermont* shows that the time is near noon or midday.

13. A rhythm of color helps create the lively mood of the painting in *Oarsmen at Chatou*.

14. *A Pastoral Concert* is an example of a group portrait.

15. Cézanne's *Still Life with Milk Jug and Fruit* contains more than one point of view.

Art History Section

16. Renaissance is a French word meaning _____.

17. Painting the queen wearing a hat instead of her crown in *Queen Henrietta Maria with Sir Jeffrey Hudson* is one way the artist suggests
   a. royalty.
   b. formality.
   c. casualness.
   d. poverty.

18. To which of these art Academies did Pater belong?
   a. British
   b. French
   c. Venetian
   d. New York

19. *A Roemer with Grapes, a Pewter Plate, and a Roll* was painted during the _____ period.

20. One development in art that occurred during the Renaissance was
    a. widespread popularity of genre subjects.
    b. invention of an airtight tube to hold oil paint.
    c. methods of showing perspective.
    d. an abstract style that made objects unrecognizable to viewers.

21. An artist whose paintings were sometimes referred to as "little jewels" is
    a. de Hooch.
    b. Brueghel.
    c. van Beyeren.
    d. Pater.

22. _____ is most famous for creating watercolor pictures of flowers and birds.

23. Which of these pairs of paintings were both created in the same period of art history?
    a. *River Landscape* and *Still Life with Milk Jug and Fruit*
    b. *New York at Night* and *Rainy Midnight*
    c. *Mounted Trumpeters of Napoleon's Imperial Guard* and *Oarsmen at Chatou*
    d. none of the above

24. *Oarsmen at Chatou* and *Rainy Midnight* are both
    a. by French artists.
    b. Impressionist works.
    c. from the Contemporary art period.
    d. Romantic works.

True/False

25. Michio Takayama was born and raised in California.

26. Gericault's father did not want him to study art.

27. The Romantic style of painting developed later than the Impressionist style did.

28. Gold backgrounds were traditional in medieval painting.

29. The style of painting known as Cubism developed during the Modern period of art history.

30. Reynolds was the seventh child born to a father who was a schoolmaster.

2021-2023 Art Study Test 1 - Grades 7-8
(Part B)

Answer Key

	Elements			History	
1.	c	(40)	16.	rebirth	(20)
2.	primary	(11)	17.	c	(30)
3.	d	(25)	18.	b	(35)
4.	warm color	(34)	19.	Baroque	(32)
5.	c	(54)	20.	c	(21)
6.	d	(33)	21.	a	(33)
7.	a	(48)	22.	Bridges	(43)
8.	*The Madonna of Humility*	(22)	23.	c	(40, 45)
9.	a	(31)	24.	b	(45, 48)
10.	T	(8)	25.	F	(55)
11.	F	(26)	26.	T	(40)
12.	F	(42)	27.	F	(36)
13.	T	(45)	28.	T	(22)
14.	F	(35)	29.	F	(49)
15.	T	(50)	30.	T	(39)

Numbers in parentheses are page numbers where answers can be found in the *Art Smart Bulletin* for 2021-2022 and 2022-2023. Correct spelling is <u>not</u> required for short answers.

2021-2023 Art Study Test 2 - Grades 7-8
Art Elements

1. In *Portrait of an Old Woman*, the artist focuses attention on the woman's face by
   a. surrounding it with a dark background and a light veil.
   b. showing her in a strong light, as if she were in a spotlight.
   c. painting her face in clear detail and the rest of the picture with loose brushstrokes.
   d. using bright, complementary colors.

2. In *Woman with a Parasol - Madame Monet and Her Son*,
   a. the only yellow in the painting is in the flowers and grass at Madame Monet's feet.
   b. there are warm touches of red in the face and hat of Madame Monet's son.
   c. Madame Monet's features and those of her son are carefully painted in fine detail.
   d. the swirling brush strokes that create the clouds provide a contrast to the long, straight brush strokes that form Madame Monet's gown.

3. Colors that are created by combining yellow with red or blue are called _____ colors.

4. To keep viewers' eyes moving around the image in *Expectation*, the artist used
   a. small reflections of light.
   b. a rhythm of vertical lines.
   c. changing shades of color.
   d. loose, flowing brushstrokes.

5. In *Three Maries at the Tomb*, the light on the distant city helps to balance the visual weight of the _____.

6. In which of these paintings did the artist use highlights and shading most carefully to show three-dimensional form?
   a. *Mountains at Collioure*
   b. *Expectation*
   c. *The Harvesters*
   d. *Still Life with Vegetables*

7. In *Estuary at Day's End*,
   a. most of the canvas is taken up with water and sky.
   b. the artist uses warm colors to tie the foreground and the background of the painting together.
   c. warm colors are more important than cool colors in the composition of the painting.
   d. light flows into the painting from the right foreground.

8. Leaving out details and using paler colors in the background are ways of suggesting distance using the techniques of _____ perspective.

9. Which of these pairs of paintings is closest to the same size?
   a. *Expectation* and *A Dutch Courtyard*
   b. *Anton Francesco degli Albizzi* and *Portrait of Michol (Miguel Pol?)*
   c. *River Landscape* and *Dalet Kaf*
   d. *Saint George and the Dragon* and *Portrait of Mrs. Jelf Powis and Her Daughter*

True/False

10. Basing a painting's composition on a triangle or pyramid shape gives the work balance.

11. *Portrait of Michol (Miguel Pol?)* is the type of portrait that is intended to give a close, personal image of the sitter's character and personality.

12. The forms of the people on the shore in *Oarsmen at Chatou* provide a contrast to other lines in the painting.

13. Traditional techniques for showing perspective are important in *New York at Night*.

14. The gold in *The Madonna of Humility* symbolizes God's holy presence.

15. The horse and rider in the foreground of *Mounted Trumpeters of Napoleon's Imperial Guard* are painted with careful detail.

Art History Section

16. Which of these events occurred during the Modern period of art history?
   a. invention of the printing press
   b. Galileo's scientific discoveries
   c. invention of the steam engine
   d. automobiles became common

17. What evidence is there that shows Memling became one of his city's wealthiest citizens?
   a. bank statements
   b. a death certificate
   c. a diary
   d. tax records

18. *Dalet Kaf* was created using a thinned form of _____ paint.

19. Which of the following is not a characteristic common in Neoclassical painting?
    a. grand themes from history and legend
    b. strongly drawn lines
    c. playful, lighthearted mood
    d. smooth, polished canvas

20. Which of these pairs of paintings was painted at closest to the same time?
    a. *Haystack Mountain, Vermont* and *Old Faithful Geyser, Yellowstone National Park*
    b. *A Pastoral Concert* and *The Harvesters*
    c. *A Roemer with Grapes, a Pewter Plate, and a Roll* and *The Quiver Maker*
    d. *River Landscape* and *Still Life with Milk Jug and Fruit*

21. Jacopo Empoli spent his entire career in the city of _____, Italy.

22. The development of the Cubist style changed the way artists approached the use of
    a. color.
    b. light.
    c. perspective.
    d. rhythm.

23. Which of these paintings was created by a Swiss artist?
    a. *Portrait of Mrs. Jelf Powis and Her Daughter*
    b. *Ariadne Abandoned by Theseus*
    c. *Haystack Mountain, Vermont*
    d. none of the above

24. *Mountains at Collioure* is painted in the _____ style.

True/False

25. Pure colors and formal composition are characteristics often seen in Renaissance paintings.

26. *A Pastoral Concert* is an older painting than *Still Life with Milk Jug and Fruit*.

27. Over the course of his career, Hassam painted in several different styles.

28. Couse was born in Michigan, but lived the last years of his life in New Mexico.

29. Romantic artists valued reason and order more than emotion and imagination.

30. Fidelia Bridges was a member of the original group of artists known as Impressionists.

2021-2023 Art Study Test 2 - Grades 7-8
(Part B)

Answer Key

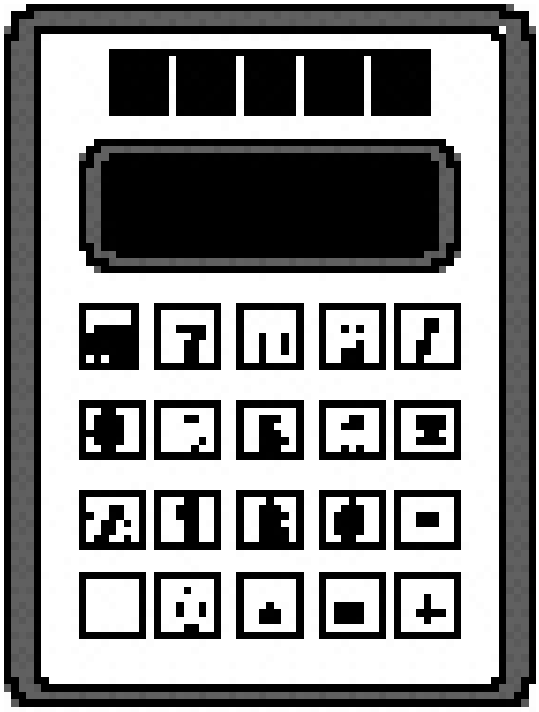
	Elements			History	
1.	a	(24)	16.	c	(36)
2.	b	(44)	17.	d	(24)
3.	secondary	(15)	18.	acrylic	(54)
4.	c	(55)	19.	c	(10)
5.	angel	(27)	20.	a	(42)
6.	d	(41)	21.	Florence	(27)
7.	a	(31)	22.	c	(49)
8.	atmospheric [or] aerial	(21)	23.	b	(38)
9.	b	(56)	24.	Fauvist	(51)
10.	T	(19)	25.	T	(21)
11.	F	(34)	26.	T	(35, 50)
12.	T	(45)	27.	F	(48)
13.	F	(52)	28.	T	(53)
14.	T	(22)	29.	F	(12)
15.	T	(40)	30.	F	(43)

Numbers in parentheses are page numbers where answers can be found in the *Art Smart Bulletin* for 2021-2022 and 2022-2023. Correct spelling is <u>not</u> required for short answers.

INVITATIONAL 2020-2021

A+ ACADEMICS

University Interscholastic League



Calculator Applications

DO NOT OPEN TEST
UNTIL TOLD TO DO SO

2021 UIL MS Calculator Test A

21A-1. –8.9 + 8.42 ---------- 1=_____

21A-2. 3 + 7.69 + 4 ---------- 2=_____

21A-3. –308 + 118 + 156 ---------- 3=_____

21A-4. 22 – 22 – 15 + 20 ---------- 4=_____

21A-5. 444 + 548 + 115 + 130 ---------- 5=_____

21A-6. 57 – 364 – 244 – 357 + 531 ---------- 6=_____

21A-7. 0.385 + 0.715 + π + 0.283 + 0.492 ---------- 7=_____

21A-8. 1.66 – 1.65 + 1.21 – π – 4.31 ---------- 8=_____

21A-9. 206 x 71.8 x 586 ---------- 9=_____

21A-10. 378 x 85.9 x 886 x 136 ---------- 10=_____

21A-11. What is the quotient of two pi and 17.8 if the answer is greater than the integer one? ---------- 11=_____

21A-12. Genny found 18 coins in her purse when she decided to clean it out. If there were 5 nickels, 7 quarters, 2 dimes and the rest of the change in pennies, how much money in change did she have? --------- 12=$_____

21A-13. How many minutes are in 14 hours? ---------- 13=_____min(integer)

21A-14. $80/[76 \times 49 \times 143]$ ---------- 14=_____

21A-15. $(119)[113 \times 248 \times 207]$ ---------- 15=_____

21A-16. $\{(310)(117 - 311)(291)\} - 1.43 \times 10^{7}$ ---------- 16=_____

21A-17. $\{-183/153\}\left[\frac{216}{266 + 56}\right]$ ---------- 17=_____

21A-18. $\left[\frac{(0.00585 + 0.00392)}{171/19}\right]\left[\frac{0.14}{3.96}\right]$ ---------- 18=_____

21A-19. $\frac{(221/446) + (642/200)}{(0.0259 - 0.0334)}$ ---------- 19=_____

21A-20. $\frac{(779)(5.4)}{0.0471}(3480 - 1040)$ ---------- 20=_____

21A-21. $(0.117)[28/53 \times 27/63] - 0.0108$ ---------- 21=_____

21A-22. $\frac{(\pi)(161/47)(89/137)}{(117/116)}$ ---------- 22=_____

21A-23. $\frac{(0.253 + 0.132 - 0.321)}{\{(408 - 677)/(0.739)\}}$ ---------- 23=_____

21A-24. A concrete-rectangular sidewalk is 6’ wide, 4” thick and one half mile long. How much concrete is in this sidewalk? ---------- 24=_____ yds^3

21A-25. Noah has 12 different crayons, 6 different colored pencils and 3 different colored ink pens. How many different combinations of a crayon, an ink pen and a colored pencil does Noah have? ---------- 25=_____ integer

21A-26. Wesley spins a rubber stopper attached to a 3’ long string around his head so that the stopper spins once around every quarter of a second. What is the speed of the stopper? ---------- 26=_____ ft/s

21A-27. $(21.5)[[5.93/(4.19)][0.0056/(0.00309)]]$ ---------- 27=_____

21A-28. $[1100 - (707 + 213)] + \left[(\pi)(725 - 701)\right]$ ---------- 28=_____

21A-29. $\dfrac{(1.53\text{x}10^{11}) + (6.16\text{x}10^{10})}{(-0.147)(0.561) - 0.0531}$ ---------- 29=_____

21A-30. $(8.8)\left[(5.77\text{x}10^{10}) - (3.99\text{x}10^{10})\right]$ ---------- 30=_____

21A-31. $(2.49)\left[\dfrac{120}{(2.15\text{x}10^{9})}\right]$ ---------- 31=_____

21A-32. $\dfrac{1}{-0.347} + \dfrac{1}{(\pi)(2.33 - 2.63)}$ ---------- 32=_____

21A-33. $\left[\dfrac{1/239}{1/176}\right] + [0.381]$ ---------- 33=_____

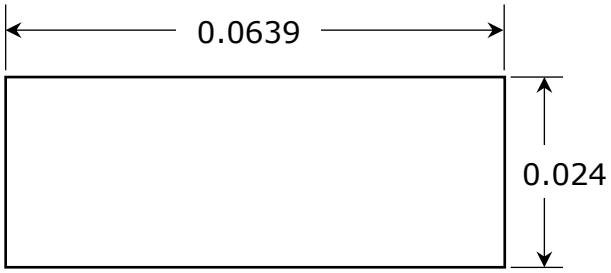
21A-34. $\left[\dfrac{1/890}{1/1860}\right][2.70\text{x}10^{6}]$ ---------- 34=_____

21A-35. If there are 52 cards in a standard deck of playing cards what is the probability of drawing a queen of spades with one draw? -------- 35=_____

21A-36. If there are 2.54 centimeters in one inch, how many millimeters (mm) are in one yard?---------- 36=_____mm

21A-37.

RECTANGLE

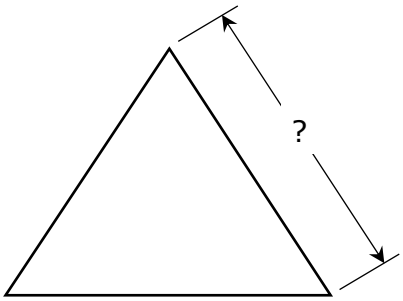


Perimeter = ?

21A-37 =_____

21A-38.

EQUILATERAL TRIANGLE



Perimeter = $8.21\text{x}10^{-7}$

21A-38 =_____

21A-39. $\left[\frac{851}{879}\right](202 + 429)^2$ ---------- 39=_____

21A-40. $\left[\frac{36300 + (1/(4.28\text{x}10^{-5}))}{(7040/26000) - 0.164}\right]^2$ ---------- 40=_____

21A-41. $(0.968 + 3.14)^2(46.2 + 25.2)^2$ ---------- 41=_____

21A-42. $\sqrt{98.9} + \sqrt{93.6 + 133} - (\pi)\sqrt{156}$ ---------- 42=_____

21A-43. $(1/(0.0111))(1.10\text{x}10^5 - 89000)^3$ ---------- 43=_____

21A-44. $(1/\pi)\sqrt[3]{\frac{0.0746 + 0.0943}{0.848 - 0.672}}$ ---------- 44=_____

21A-45. $(243)\sqrt[3]{2990 + 7290 - 2200}$ ---------- 45=_____

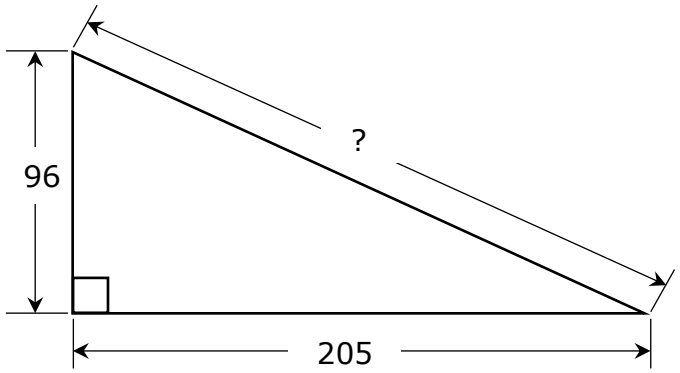
21A-46. $\frac{(1680 + 4670)^{1/4}}{(901 - 234)^{1/5}}$ ---------- 46=_____

21A-47. A crow, sitting on a post 6' above the ground, drops straight down and walks 12' in a straight line in search of worms. If the crow flies back to its original perch, what is the shortest distance it flies? -------- 47=_____ft

21A-48. Albert is driving along at a speed of 72 miles per hour when he passes under a bridge that is 65' wide. How long does it take Albert to pass under the bridge? ---------- 48=_____s

21A-49.

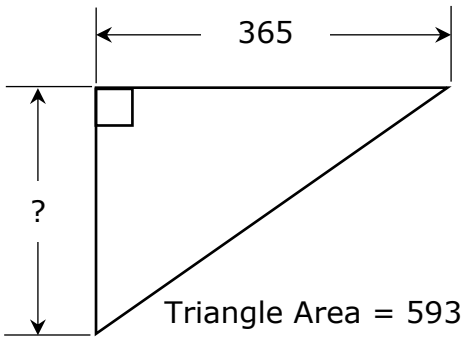
RIGHT TRIANGLE



21A-49 =_____

21A-50.

RIGHT TRIANGLE



21A-50 =_____

21A-51. $\dfrac{(6030 + 9020 - 15400)^4}{\sqrt{27400 + 45900 + 15900}}$ ---------- 51=_____

21A-52. $\sqrt{\dfrac{6.73}{(2.01\text{x}10^5)(1.24\text{x}10^5)}} + \dfrac{(0.0117 - 0.00315)}{(175 + 295)}$ --------- 52=_____

21A-53. $\dfrac{\sqrt{46.5 + \pi + 41.9}}{(5250 - 1550 + 5080)^2}$ ---------- 53=_____

21A-54. $\sqrt{\dfrac{(1.43\text{x}10^5)(49100)}{(70800)(7590)}} - 0.476 + 0.499$ ---------- 54=_____

21A-55. $0.33 + \sqrt{(3050)/(1450)} - (0.127 + 1.12)^2$ ---------- 55=_____

21A-56. $\sqrt{\dfrac{1/(19.5 - 13.2)}{(105)(29.8 + 29.4)^6}}$ ---------- 56=_____

21A-57. (rad) tan(223) + (187/37.1) ---------- 57=_____

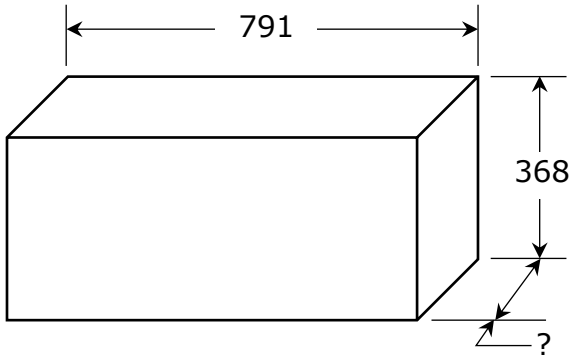
21A-58. $\sqrt{\dfrac{1/(134 - 90.1)}{(41)(326 + 206)^{-5}}}$ ---------- 58=_____

21A-59. The average speed of a moving object can be found by dividing the total distance by the total time. If Andy walks 750 feet in 2 minutes, stops and takes pictures for 2 minutes, then walks another 900 feet in 2.75 minutes, what is Andy's average speed for the total distance traveled? ---------- 59=_____ mph

21A-60. The root-mean-square speed (v_{rms}) of a gas molecule, in m/s, is found by taking the square root of the quantity: three times a constant, ***k***, times the temperature in Kelvins and dividing this product by the mass of the molecule in kilograms. What is the v_{rms} for a molecule of oxygen that has a mass of $5.31\text{x}10^{-26}$ kg and is at a temperature of 293 Kelvins? The value of the constant, k, is $1.38\text{x}10^{-23}$. ---------- 60=_____ m/s

21A-61.

SOLID RECTANGULAR BOX

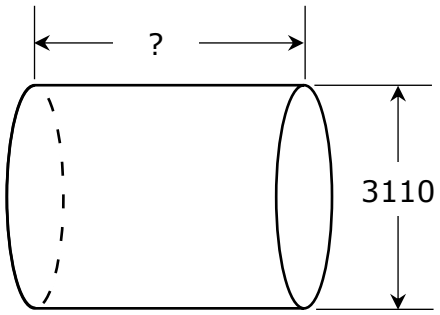


Total Surface Area = 967000

21A-61 =_____

21A-62.

SOLID RIGHT CYLINDER



Total Surface Area = 5.52×10^7

21A-62 =_____

21A-63. $\frac{14! - 21!}{16!}$ ---------- 63=_____

21A-64. $(147 - \pi)e^{0.548}$ ---------- 64=_____

21A-65. (deg) $\frac{\tan(175°)}{659}$ ---------- 65=_____

21A-66. (rad) $\frac{\tan(10.5)}{691/812}$ ---------- 66=_____

21A-67. (deg) $[277]\cos(45.8° - 150°)$ ---------- 67=_____

21A-68. (deg) $\frac{\sin(195°)}{\tan(195°)}[8.98]$ ---------- 68=_____

21A-69. (deg) $\frac{\sin(327°) - \tan(327°)}{\sin(327°)}$ ---------- 69=_____

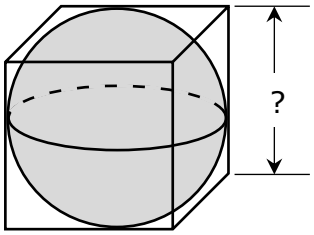
21A-70. $(4.66 - 17.6)e^{\pi - 0.68}$ ---------- 70=_____

21A-71. Four times a number squared minus twice that number is 15.75. What is the number if it is positive?---------- 71=_____

21A-72. Mackenzie bought a new dress for a cost of $178.60. If this cost included a 8.25% sales tax, what was the cost of the dress without the sales tax? ---------- 72=$_____

21A-73.

CUBE WITH INSCRIBED SPHERE



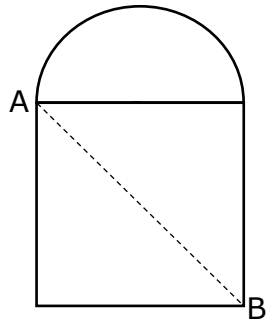
Cube Volume – Sphere Volume = 100

21A-73 =_____

21A-74.

SQUARE AND SEMICIRCLE

AB = ?



Total Area = 100

21A-74 =_____

21A-75. $\dfrac{\text{Log}(2.51\text{x}10^{7} + 6.84\text{x}10^{6})}{16.6}$ ---------- 75=_____

21A-76. $\text{Ln}\left[\dfrac{541 + 348 + 277}{234 + 439 - 112}\right]$ ---------- 76=_____

21A-77. $\dfrac{35.9 - 6.27}{\text{Log}(7550 + 10000)}$ ---------- 77=_____

21A-78. $\text{Ln}\left[\dfrac{204 + 152 + 123}{2890 - 156 - 509}\right]$ ---------- 78=_____

21A-79. $1 + 2 + 3 + \ldots + 937$ ---------- 79=_____

21A-80. $-\dfrac{1}{(8.3)} + \dfrac{1}{3(8.3)^{3}} - \dfrac{1}{5(8.3)^{5}} + \dfrac{1}{7(8.3)^{7}}$ ---------- 80=_____

2021 UIL MS Calculator Test A Answer Key

21A-1 = -0.480
= -4.80×10^{-1}

21A-2 = 14.7
= 1.47×10^{1}

21A-3 = -34.0
= -3.40×10^{1}

21A-4 = 5.00
= 5.00×10^{0}

21A-5 = 1240
= 1.24×10^{3}

21A-6 = -377
= -3.77×10^{2}

21A-7 = 5.02
= 5.02×10^{0}

21A-8 = -6.23
= -6.23×10^{0}

21A-9 = 8.67×10^{6}

21A-10 = 3.91×10^{9}

21A-11 = 2.83
= 2.83×10^{0}

21A-12 = 2.24
Dollar Answer

21A-13 = 840
Integer Answer

21A-14 = 0.000150
= 1.50×10^{-4}

21A-15 = 6.90×10^{8}

21A-16 = -3.18×10^{7}

21A-17 = -0.802
= -8.02×10^{-1}

21A-18 = 3.84×10^{-5}

21A-19 = -494
= -4.94×10^{2}

21A-20 = 2.18×10^{8}

21A-21 = 0.0157
= 1.57×10^{-2}

21A-22 = 6.93
= 6.93×10^{0}

21A-23 = -0.000176
= -1.76×10^{-4}

21A-24 = 196
= 1.96×10^{2}

21A-25 = 216
Integer Answer

21A-26 = 75.4
= 7.54×10^{1}

21A-27 = 55.1
= 5.51×10^{1}

21A-28 = 255
= 2.55×10^{2}

21A-29 = -1.58×10^{12}

21A-30 = 1.57×10^{11}

21A-31 = 1.39×10^{-7}

21A-32 = -3.94
= -3.94×10^{0}

21A-33 = 1.12
= 1.12×10^{0}

21A-34 = 5.64×10^{6}

21A-35 = 0.0192
= 1.92×10^{-2}

21A-36 = 914
= 9.14×10^{2}

21A-37 = 0.176
= 1.76×10^{-1}

21A-38 = 2.74×10^{-7}

2021 UIL MS Calculator Test A Answer Key

21A-39 = 385000
= 3.85×10^{5}

21A-40 = 3.12×10^{11}

21A-41 = 86000
= 8.60×10^{4}

21A-42 = -14.2
= -1.42×10^{1}

21A-43 = 8.34×10^{14}

21A-44 = 0.314
= 3.14×10^{-1}

21A-45 = 4880
= 4.88×10^{3}

21A-46 = 2.43
= 2.43×10^{0}

21A-47 = 13.4
= 1.34×10^{1}

21A-48 = 0.616
= 6.16×10^{-1}

21A-49 = 226
= 2.26×10^{2}

21A-50 = 325
= 3.25×10^{2}

21A-51 = 5.02×10^{7}

21A-52 = 3.46×10^{-5}

21A-53 = 1.24×10^{-7}

21A-54 = 3.64
= 3.64×10^{0}

21A-55 = 0.225
= 2.25×10^{-1}

21A-56 = 1.87×10^{-7}

21A-57 = 4.99
= 4.99×10^{0}

21A-58 = 154000
= 1.54×10^{5}

21A-59 = 2.78
= 2.78×10^{0}

21A-60 = 478
= 4.78×10^{2}

21A-61 = 166
= 1.66×10^{2}

21A-62 = 4090
= 4.09×10^{3}

21A-63 = -2.44×10^{6}

21A-64 = 249
= 2.49×10^{2}

21A-65 = -0.000133
= -1.33×10^{-4}

21A-66 = 2.17
= 2.17×10^{0}

21A-67 = -68.0
= -6.80×10^{1}

21A-68 = -8.67
= -8.67×10^{0}

21A-69 = -0.192
= -1.92×10^{-1}

21A-70 = -152
= -1.52×10^{2}

21A-71 = 2.25
= 2.25×10^{0}

21A-72 = 164.99
Dollar Answer

21A-73 = 5.94
= 5.94×10^{0}

21A-74 = 12.0
= 1.20×10^{1}

21A-75 = 0.452
= 4.52×10^{-1}

21A-76 = 0.732
= 7.32×10^{-1}

21A-77 = 6.98
= 6.98×10^{0}

21A-78 = -1.54
= -1.54×10^{0}

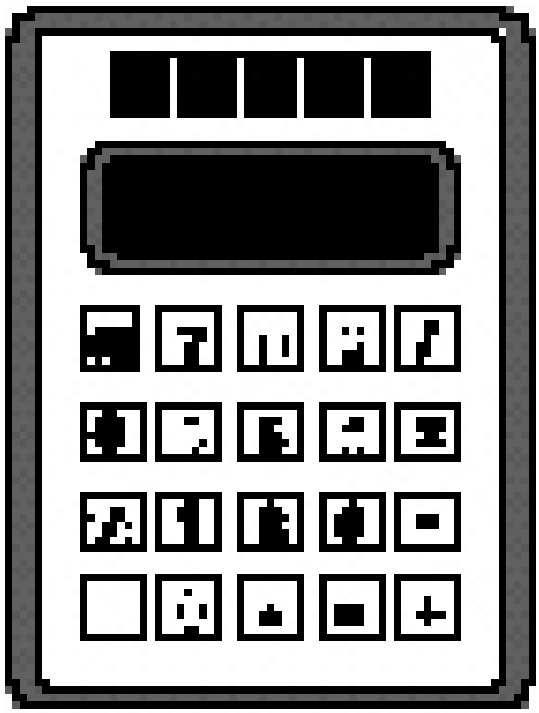
21A-79 = 439000
= 4.39×10^{5}

21A-80 = -0.120
= -1.20×10^{-1}

FALL/WINTER DISTRICT 2020-2021

A+ ACADEMICS

University Interscholastic League



Calculator Applications

DO NOT OPEN TEST
UNTIL TOLD TO DO SO

2021 UIL MS Calculator Test B

21B-1. 6.82 + 3.16 ---------- 1=_____

21B-2. –69 + 93 + 84 ---------- 2=_____

21B-3. 97.4 + 455 + 212 ---------- 3=_____

21B-4. –27 – π – 5 + 20 ---------- 4=_____

21B-5. 2140 – 1860 + 3880 – 782 ---------- 5=_____

21B-6. 409 – 160 – 255 + 353 + 370 ---------- 6=_____

21B-7. (3.82 – 4.23) + (4.3 – 3.39 – 0.983) ---------- 7=_____

21B-8. (4.63 + 1.92 – π) – (1.9 + 2.31) ---------- 8=_____

21B-9. 155 x 47.3 x 178 ---------- 9=_____

21B-10. 346 x 3770 x 2540 x 3110 ---------- 10=_____

21B-11. What is the result if twelve-point six pi is added to the negative square root of 120?---------- 11=_____

21B-12. The three Gonzales children decided to give their savings in each of their piggy banks to a local charity in desperate need of funds. Mackenzie said she would donate $28.13, Wesley said he would donate $18.73 and Noah stated that he would give the 15 quarters, 16 dimes and 23 pennies he had. How much money did the children donate?-------- 12=$_____

21B-13. As a waiter in a local restaurant, Dan worked 14 hours and received $135.50 in tips. How much per hour did Dan make? ---------- 13=_____$/hr.

21B-14. $-267/[123 \times 290 \times 212]$ ---------- 14=_____

21B-15. $-43 - [68/138 + 0.973]$ ---------- 15=_____

21B-16. $\left[\frac{-22}{108}\right][(91/81) - 0.24]$ ---------- 16=_____

21B-17. $\{-97/96\}\left[\frac{78}{67 + 141}\right]$ ---------- 17=_____

21B-18. $\left[\frac{(3240/5090) - (1990/3170)}{16.1/(16.9)}\right]$ ---------- 18=_____

21B-19. $\left[\frac{37/95}{153/141}\right]\{0.149 + 0.13 - 0.148\}$ ---------- 19=_____

21B-20. $\frac{137}{(112 - 57)} - \frac{(47 - 78)}{140}$ ---------- 20=_____

21B-21. $\frac{(\pi)(7/42)(48/25)}{107}$ ---------- 21=_____

21B-22. $\frac{[-(2000 + 1230)(2000 - 2050)]}{(3.68\text{x}10^{-4}/(0.533))}$ ---------- 22=_____

21B-23. $\left[\frac{4500 + 3270}{3110 - 1520}\right]\left[\frac{1460}{2830}\right]$ ---------- 23=_____

21B-24. How many U.S. postage stamps can one buy with $20 if each stamp currently costs 55¢?---------- 24=_____ integer

21B-25. With a 6-inch diameter auger, Mike dug a hole 28 inches deep. How much dirt did Mike dig out?---------- 25=_____ in^3

21B-26. When Genny walked into a local ice cream shop she found that the shop had 24 different flavors of ice cream, 6 different types of sprinkles for toppings and 2 different types of ice cream cones. How many different combinations of ice cream, sprinkle and cone are available from this ice cream shop for Genny?---------- 26=_____ integer

21B-27. $\dfrac{(111 + 87.2)(0.024 + 0.0483)}{(3.47\text{x}10^{10})}$ ---------- 27=_____

21B-28. $(0.159)\left[[0.12/(0.107)][0.00122/(0.00488)]\right]$ ---------- 28=_____

21B-29. $\dfrac{(4.32\text{x}10^{8}) + (1.54\text{x}10^{8})}{(-13.1)(3.27) - 10.6}$ ---------- 29=_____

21B-30. $(0.00983)\left[\dfrac{0.112}{(2.01\text{x}10^{7})}\right]$ ---------- 30=_____

21B-31. $(43.3)\left[(3.68\text{x}10^{8}) - (6.90\text{x}10^{8})\right]$ ---------- 31=_____

21B-32. $\dfrac{1}{0.265} + \dfrac{1}{(3.95 - 3.46)}$ ---------- 32=_____

21B-33. $\dfrac{1}{(0.129 - 0.232)} - \dfrac{1}{(-0.0874)}$ ---------- 33=_____

21B-34. $\dfrac{1}{200} - \dfrac{1}{(290 + 164)}$ ---------- 34=_____

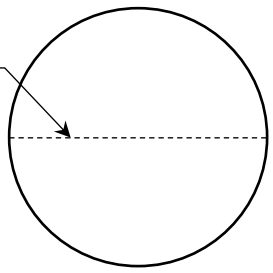
21B-35. While driving along at an average speed of 71 mph, Liz saw a highway sign that stated the next restroom stop was 13 miles away. How long will it take Liz to get to the restroom stop?---------- 35=_____min

21B-36. A men's basketball is 24.26 cm in diameter. If Matt rolls this basketball 65 feet, how many revolutions (rev) does the ball turn? ---- 36=_____rev

21B-37.

CIRCLE

Diameter = ?



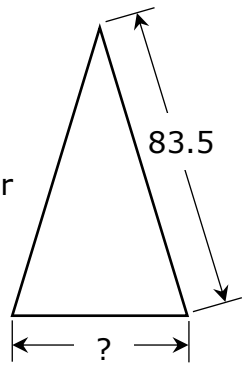
Circle Circumference = 0.000737

21B-37 =_____

21B-38.

ISOSCELES TRIANGLE

Triangle Perimeter = 212



21B-38 =_____

21B-39. $\dfrac{(5100 + 4010)^2}{(0.226 - 0.455)^3}$ ---------- 39=_____

21B-40. $(0.285 + 0.184 + 0.109)^2(4410 + 3920)^2$ ---------- 40=_____

21B-41. $\sqrt{\dfrac{0.0867 + 0.08}{0.443 - 0.174}}$ ---------- 41=_____

21B-42. $(9440)\sqrt{913 + 181 + 432}$ ---------- 42=_____

21B-43. $\sqrt{897} + \sqrt{1460 + 886} - (\pi)\sqrt{1970}$ ---------- 43=_____

21B-44. $(1/(0.00297))(5.38\text{x}10^5 - 3.42\text{x}10^5)^2$ ---------- 44=_____

21B-45. $\dfrac{(3.62 + 6.27)^{1/3}}{(118 - 81.6)^{1/5}}$ ---------- 45=_____

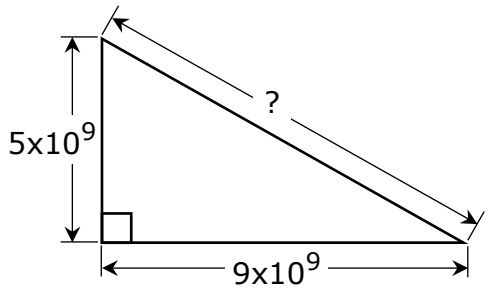
21B-46. $\sqrt[3]{0.516 - 25.6/121} + 1/\sqrt{34.6 + 21.7}$ ---------- 46=_____

21B-47. Andy took a 12' long rope and attached one end to a vertical pipe 6' above the ground. He then stretched the rope taut and with the other end traced a circle along the level ground. What is the circumference of this circle? ---------- 47=_____ ft

21B-48. Arturo walked 330' due west and stopped. He then walked 500' away to a spot due south of the point he started at. How far away is he from his starting point? ---------- 48=_____ ft

21B-49.

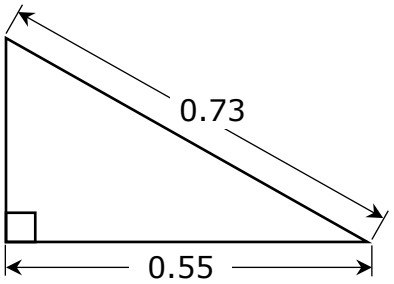
RIGHT TRIANGLE



21B-49 =_____

21B-50.

RIGHT TRIANGLE



Triangle Area = ?

21B-50 =_____

21B-51. $\left[\dfrac{18.2 + 148 + \sqrt{11900 + 27100}}{4580/14100}\right]^4$ ---------- 51=_____

21B-52. $\dfrac{(3.49 + 9.2 - 8.59)^3}{\sqrt{96300 + 19300 + 88000}}$ ---------- 52=_____

21B-53. $\sqrt{\dfrac{2.65\text{x}10^{-10}}{(1.86)(1.88)}} + \dfrac{(2.35 - 4)}{(1.10\text{x}10^5 + 71200)}$ ---------- 53=_____

21B-54. $\sqrt{\dfrac{1/(62.1 - 58.9)}{(35.6)(342 + 206)^4}}$ ---------- 54=_____

21B-55. $(239)(1.65\text{x}10^7)^{1/2} - [(7.52\text{x}10^8)(5.62\text{x}10^9)]^{1/3}$ ------- 55=_____

21B-56. $\sqrt{\dfrac{(4090)(6.16\text{x}10^5)}{(9700)(46400)}} - 1.82 + 1.57$ ---------- 56=_____

21B-57. (rad) sin(163) + (298/346) ---------- 57=_____

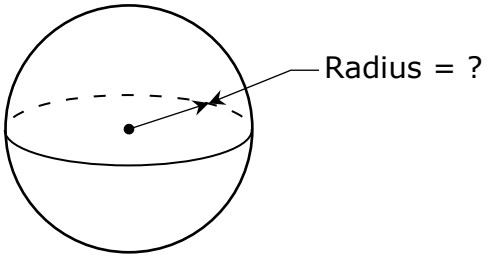
21B-58. $\sqrt{\dfrac{(10.1)(939)}{(15.9) + (10.9)}} + 1/(18.9)^{-1}$ ---------- 58=_____

21B-59. Two worms are moving toward each other at constant speeds oblivious to each other. One worm is moving at a speed of 8.25 inches per minute (ipm), while the other worm is moving with a speed of 11.25 ipm. If the worms are initially 8.75 feet apart, how long in minutes, will it take them to meet? ---------- 59=_____ min

21B-60. When an object is moving, its observed length appears to be different as measured by someone not moving with it. The formula for calculating this observed length is to multiply the object's rest length by the square root of one minus the quantity of the object's speed squared divided by the speed of light squared. So, an object with rest length of 10 meters and moving at a speed of $2\text{x}10^8$ m/s could be observed to have what length? Let the speed of light equal $3\text{x}10^8$ m/s. ---------- 60=_____ m

21B-61.

SPHERE

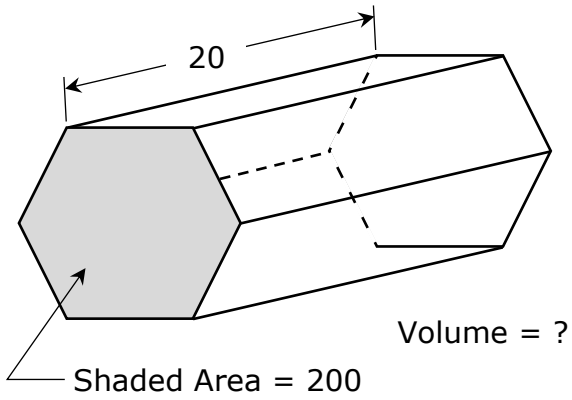


Sphere Surface Area = 8.04×10^{-12}

21B-61 =_____

21B-62.

RIGHT HEXAGONAL PRISM



21B-62 =_____

21B-63. $\frac{14!}{4!} - 12!$ ---------- 63=_____

21B-64. (deg) $\frac{\tan(5.12°)}{172}$ ---------- 64=_____

21B-65. (deg) $(9.46 - 11)\sin(11.2°)$ ---------- 65=_____

21B-66. (deg) $[111]\cos(29.7° - 27.6°)$ ---------- 66=_____

21B-67. (rad) $\sin\left[\frac{(2.19)(\pi)}{(142)(137)}\right]$ ---------- 67=_____

21B-68. (deg) $\frac{\sin(179°)}{1280 + 775}$ ---------- 68=_____

21B-69. (deg) $\frac{\sin(23.5°)}{\tan(23.5°)}[398]$ ---------- 69=_____

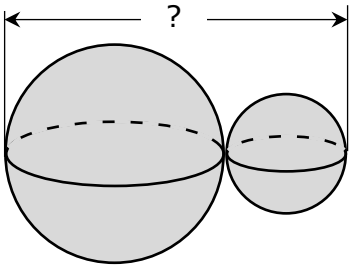
21B-70. $(22.6 + 3.13 + 3.75)^{2/5}$ ---------- 70=_____

21B-71. During the COVID-19 epidemic, Noah's day care went from a normal population of 32 to 17. What percent decrease is this? -------- 71=_____%

21B-72. Three times a number squared added to ten times that number is eight. What is the number, if it is negative? ---------- 72=_____

21B-73.

SPHERES



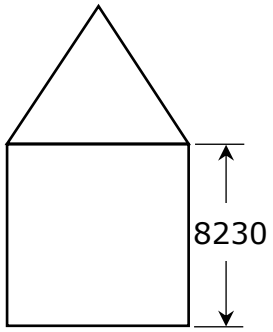
Volume Large Sphere = 200

Volume Small Sphere = 1/3 Volume Large Sphere

21B-73 =_____

21B-74.

SQUARE AND EQUILATERAL TRIANGLE



Total Area = ?

21B-74 =_____

21B-75. $\dfrac{(26.1)^{0.647}(19.6)^{0.665}}{(17.2 - 8.68)^{-7}}$ ---------- 75=_____

21B-76. $\dfrac{\text{Log}(3.29\text{x}10^{5} + 4.43\text{x}10^{5})}{3.31}$ ---------- 76=_____

21B-77. $\dfrac{3610 - 1830}{\text{Log}(10700 + 12100)}$ ---------- 77=_____

21B-78. $\dfrac{\text{Log}[3020 + (907)(14.6)]}{1.76 + \text{Log}[279 + 136]}$ ---------- 78=_____

21B-79. $2 + 4 + 6 + \ldots + 462$ ---------- 79=_____

21B-80. $\dfrac{1}{(0.689)} + \dfrac{1}{3(0.689)^{3}} + \dfrac{1}{5(0.689)^{5}} + \dfrac{1}{7(0.689)^{7}}$ ------ 80=_____

2021 UIL MS Calculator Test B Answer Key

21B-1 = 9.98
= 9.98×10^{0}

21B-2 = 108
= 1.08×10^{2}

21B-3 = 764
= 7.64×10^{2}

21B-4 = -15.1
= -1.51×10^{1}

21B-5 = 3380
= 3.38×10^{3}

21B-6 = 717
= 7.17×10^{2}

21B-7 = -0.483
= -4.83×10^{-1}

21B-8 = -0.802
= -8.02×10^{-1}

21B-9 = 1.31×10^{6}

21B-10 = 1.03×10^{13}

21B-11 = 28.6
= 2.86×10^{1}

21B-12 = 52.44
Dollar Answer

21B-13 = 9.68
= 9.68×10^{0}

21B-14 = -3.53×10^{-5}

21B-15 = -44.5
= -4.45×10^{1}

21B-16 = -0.180
= -1.80×10^{-1}

21B-17 = -0.379
= -3.79×10^{-1}

21B-18 = 0.00922
= 9.22×10^{-3}

21B-19 = 0.0470
= 4.70×10^{-2}

21B-20 = 2.71
= 2.71×10^{0}

21B-21 = 0.00940
= 9.40×10^{-3}

21B-22 = 2.34×10^{8}

21B-23 = 2.52
= 2.52×10^{0}

21B-24 = 36
Integer Answer

21B-25 = 792
= 7.92×10^{2}

21B-26 = 288
Integer Answer

21B-27 = 4.13×10^{-10}

21B-28 = 0.0446
= 4.46×10^{-2}

21B-29 = -1.10×10^{7}

21B-30 = 5.48×10^{-11}

21B-31 = -1.39×10^{10}

21B-32 = 5.81
= 5.81×10^{0}

21B-33 = 1.73
= 1.73×10^{0}

21B-34 = 0.00280
= 2.80×10^{-3}

21B-35 = 11.0
= 1.10×10^{1}

21B-36 = 26.0
= 2.60×10^{1}

21B-37 = 0.000235
= 2.35×10^{-4}

21B-38 = 45.0
= 4.50×10^{1}

2021 UIL MS Calculator Test B Answer Key

21B-39 $= -6.91 \times 10^{9}$

21B-40 $= 2.32 \times 10^{7}$

21B-41 $= 0.787$
$= 7.87 \times 10^{-1}$

21B-42 $= 369000$
$= 3.69 \times 10^{5}$

21B-43 $= -61.1$
$= -6.11 \times 10^{1}$

21B-44 $= 1.29 \times 10^{13}$

21B-45 $= 1.05$
$= 1.05 \times 10^{0}$

21B-46 $= 0.806$
$= 8.06 \times 10^{-1}$

21B-47 $= 65.3$
$= 6.53 \times 10^{1}$

21B-48 $= 376$
$= 3.76 \times 10^{2}$

21B-49 $= 1.03 \times 10^{10}$

21B-50 $= 0.132$
$= 1.32 \times 10^{-1}$

21B-51 $= 1.57 \times 10^{12}$

21B-52 $= 0.153$
$= 1.53 \times 10^{-1}$

21B-53 $= -4.01 \times 10^{-7}$

21B-54 $= 3.12 \times 10^{-7}$

21B-55 $= -646000$
$= -6.46 \times 10^{5}$

21B-56 $= 2.12$
$= 2.12 \times 10^{0}$

21B-57 $= 0.506$
$= 5.06 \times 10^{-1}$

21B-58 $= 37.7$
$= 3.77 \times 10^{1}$

21B-59 $= 5.38$
$= 5.38 \times 10^{0}$

21B-60 $= 7.45$
$= 7.45 \times 10^{0}$

21B-61 $= 8.00 \times 10^{-7}$

21B-62 $= 4000$
$= 4.00 \times 10^{3}$

21B-63 $= 3.15 \times 10^{9}$

21B-64 $= 0.000521$
$= 5.21 \times 10^{-4}$

21B-65 $= -0.299$
$= -2.99 \times 10^{-1}$

21B-66 $= 111$
$= 1.11 \times 10^{2}$

21B-67 $= 0.000354$
$= 3.54 \times 10^{-4}$

21B-68 $= 8.49 \times 10^{-6}$

21B-69 $= 365$
$= 3.65 \times 10^{2}$

21B-70 $= 3.87$
$= 3.87 \times 10^{0}$

21B-71 $= 46.9$
$= 4.69 \times 10^{1}$

21B-72 $= -4.00$
$= -4.00 \times 10^{0}$

21B-73 $= 12.3$
$= 1.23 \times 10^{1}$

21B-74 $= 9.71 \times 10^{7}$

21B-75 $= 1.95 \times 10^{8}$

21B-76 $= 1.78$
$= 1.78 \times 10^{0}$

21B-77 $= 408$
$= 4.08 \times 10^{2}$

21B-78 $= 0.962$
$= 9.62 \times 10^{-1}$

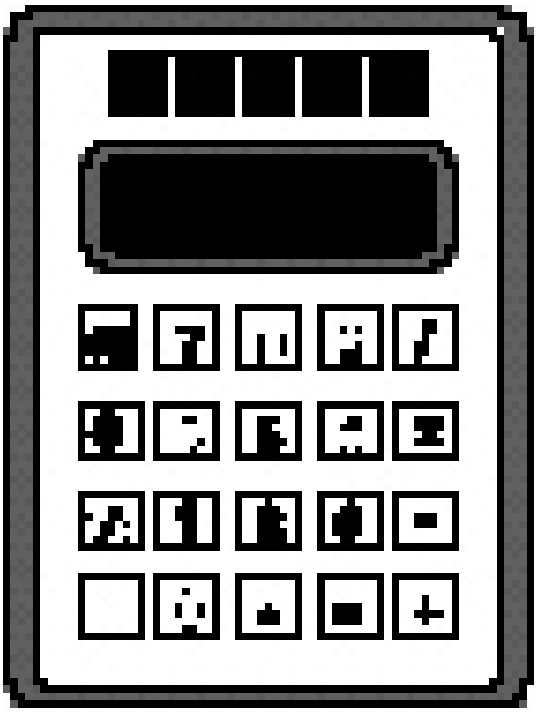
21B-79 $= 53600$
$= 5.36 \times 10^{4}$

21B-80 $= 5.70$
$= 5.70 \times 10^{0}$

SPRING DISTRICT 2020-2021

A+ ACADEMICS

University Interscholastic League



Calculator Applications

DO NOT OPEN TEST
UNTIL TOLD TO DO SO

2021 UIL MS Calculator Test C

51C-1. 50.4 + 73.4 ---------- 1=_____

51C-2. –6 – 6 – 13 ---------- 2=_____

51C-3. 461 + 1590 – 2190 ---------- 3=_____

51C-4. 29 – 23 – 30 – 19 ---------- 4=_____

51C-5. –98 – 29 – 180 – 47 ---------- 5=_____

51C-6. 261 – 460 – 267 – 350 + 205 ---------- 6=_____

51C-7. 0.603 + 0.532 – 0.269 + 0.43 + 1.56 ---------- 7=_____

51C-8. 2.17 + π + 3.75 + 3.18 + 1.99 ---------- 8=_____

51C-9. 32.2 x 224 x 236 ---------- 9=_____

51C-10. 204 x 154 x 60.7 x 625 ---------- 10=_____

51C-11. What is the result if nine-point seven pi is added to the negative square root of 125?---------- 11=_____

51C-12. The three Gonzales children decided to give their savings in each of their piggy banks to a local charity in desperate need of funds. Mackenzie said she would donate $32.45, Wesley said he would donate $23.73 and Noah stated that he would give the 16 quarters, 9 dimes and 62 pennies he had. How much money did the children donate?-------- 12=$_____

51C-13. As a waiter in a local restaurant, Dan worked 16 hours and received $148.50 in tips. How much per hour did Dan make? ---------- 13=_____ $/hr.

51C-14. $84/[123 \times 119 \times 122]$ ---------- 14=_____

51C-15. $(-171/55)[220 - 42]$ ---------- 15=_____

51C-16. $\{227/94\}\left[\frac{167}{178 + 149}\right]$ ---------- 16=_____

51C-17. $\left[\frac{139}{106}\right][(118/57) - 0.238]$ ---------- 17=_____

51C-18. $\left[\frac{(1610/5210) - (2610/4600)}{0.132/(0.173)}\right]$ ---------- 18=_____

51C-19. $\frac{[0.183/(0.0928)]/0.0939}{(162 \times 59.2)(14.5)}$ ---------- 19=_____

51C-20. $\frac{(\pi)(7/2)(6/3)}{77}$ ---------- 20=_____

51C-21. $\left[\frac{(0.336)(2.2)}{1.58 \times 10^{-4}}\right](0.00312 - 0.00962)$ ---------- 21=_____

51C-22. $\left[\frac{2450 + 1420}{2900 - 1850}\right]\left[\frac{545}{2350}\right]$ ---------- 22=_____

51C-23. $\frac{(527 \times 503)/2330}{(1380 \times 168) + 1.96 \times 10^{5}}$ ---------- 23=_____

51C-24. How many U.S. postage stamps can one buy with $30 if each stamp currently costs 55¢?---------- 24=_____ integer

51C-25. With a 6-inch diameter auger, Mike dug a hole 32 inches deep. How much dirt did Mike dig out?---------- 25=_____ in^3

51C-26. When Genny walked into a local ice cream shop she found that the shop had 36 different flavors of ice cream, 6 different types of sprinkles for toppings and 2 different types of ice cream cones. How many different combinations of ice cream, sprinkle and cone are available from this ice cream shop for Genny?---------- 26=_____ integer

51C-27. $\dfrac{(3.75\text{x}10^{5}) + (1.32\text{x}10^{6})}{(-0.553)(0.986) - 0.464}$ ---------- 27=_____

51C-28. $\dfrac{(3.35 - 1.47)(20.5 + 5.53)}{(4.36\text{x}10^{12})}$ ---------- 28=_____

51C-29. $\dfrac{(79.5 + 27.1)(129 + 107)}{(1.97\text{x}10^{11})}$ ---------- 29=_____

51C-30. $[58.3]\left[\dfrac{1/1.4}{1/(\pi)}\right]$ ---------- 30=_____

51C-31. $\dfrac{1}{0.00468} + \dfrac{1}{(\pi)(0.0851 - 0.0764)}$ ---------- 31=_____

51C-32. $(13.4)\left[(8.80\text{x}10^{-10}) - (1.58\text{x}10^{-9})\right]$ ---------- 32=_____

51C-33. $\left[\dfrac{1/225}{1/53.6}\right] + [0.344]$ ---------- 33=_____

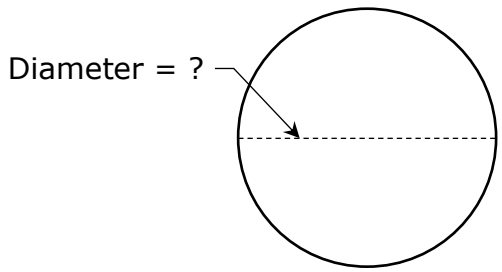
51C-34. $\dfrac{1}{(0.203 - 0.13)} - \dfrac{1}{(0.0411)}$ ---------- 34=_____

51C-35. While driving along at an average speed of 72 mph, Liz saw a highway sign that stated the next restroom stop was 15 miles away. How long will it take Liz to get to the restroom stop?---------- 35=_____min

51C-36. A men's basketball is 24.26 cm in diameter. If Matt rolls this basketball 85 feet, how many revolutions (rev) does the ball turn? ---- 36=_____rev

51C-37.

CIRCLE

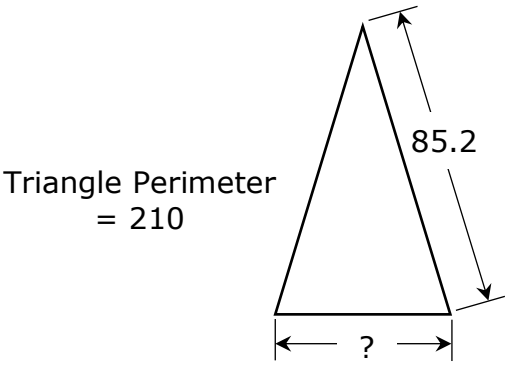


Circle Circumference = 0.000131

51C-37 =_____

51C-38.

ISOSCELES TRIANGLE



51C-38 =_____

51C-39. $(13.5 + 47.5 + 14.5)^2(0.0582 + 0.0872)^2$ ---------- 39=_____

51C-40. $\left[\dfrac{1500 + (1/(0.00128))}{(1300/567) - 1.85}\right]^2$ ---------- 40=_____

51C-41. $\left[\dfrac{555}{44}\right](502 + 641)^3$ ---------- 41=_____

51C-42. $\sqrt{2170 - 1930 + 2060} - \sqrt{632}$ ---------- 42=_____

51C-43. $\sqrt{(1.37/1.4) + 0.729 - 0.495}$ ---------- 43=_____

51C-44. $(1/(0.00731))(9880 - 3630)^3$ ---------- 44=_____

51C-45. $\sqrt{6.89 - 881/314} + 1/\sqrt{0.0444 + 0.0106}$ ---------- 45=_____

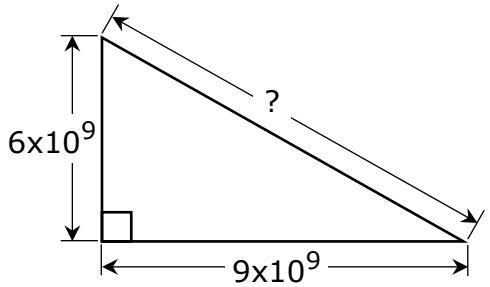
51C-46. $\dfrac{1}{\sqrt{147 + 565 + 135}} + \left(\dfrac{1}{\sqrt{4.87}}\right)^4$ ---------- 46=_____

51C-47. Andy took a 15' long rope and attached one end to a vertical pipe 6' above the ground. He then stretched the rope taut and with the other end traced a circle along the level ground. What is the circumference of this circle? ---------- 47=_____ ft

51C-48. Arturo walked 400' due west and stopped. He then walked 550' away to a spot due south of the point he started at. How far away is he from his starting point? ---------- 48=_____ ft

51C-49.

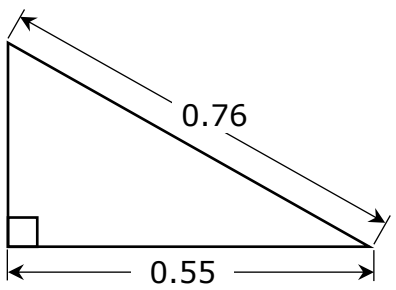
RIGHT TRIANGLE



51C-49 =_____

51C-50.

RIGHT TRIANGLE



Triangle Area = ?

51C-50 =_____

51C-51. $\dfrac{\sqrt{39.3 + \pi + 18.4}}{(0.0479 - 0.106 + 0.105)^4}$ ---------- 51=_____

51C-52. $\left[\dfrac{\sqrt{\sqrt{1.56\text{x}10^5 - 88300}}}{-(676 - 764)}\right]^2 [18300 + 19000]$ ---------- 52=_____

51C-53. $\left[\dfrac{245 + 169 + \sqrt{1.32\text{x}10^5 + 1.34\text{x}10^5}}{22.2/25.8}\right]^3$ ---------- 53=_____

51C-54. $(246)(3.81\text{x}10^7)^{1/2} - [(2.05\text{x}10^{12})(1.50\text{x}10^{13})]^{1/4}$ ---- 54=_____

51C-55. $(120)^2 \sqrt{(7.15)/(4.05)} - (10700 + 2430)$ ---------- 55=_____

51C-56. $0.312 + \sqrt{(124)/(405)} - (0.386 + 0.472)^2$ ---------- 56=_____

51C-57. $\sqrt{\dfrac{(4.03)(16.3)}{(25.5) + (29.6)}} - 2.3$ ---------- 57=_____

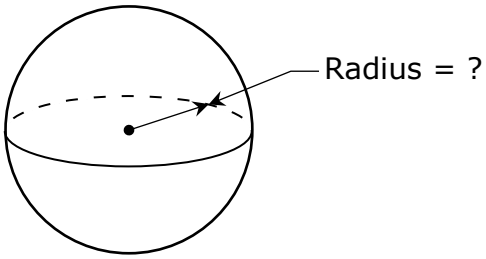
51C-58. (deg) $\tan(33^\circ) + (381/256)$ ---------- 58=_____

51C-59. Two worms are moving toward each other at constant speeds oblivious to each other. One worm is moving at a speed of 8.75 inches per minute (ipm), while the other worm is moving with a speed of 10.25 ipm. If the worms are initially 9.75 feet apart, how long in minutes, will it take them to meet? ---------- 59=_____min

51C-60. When an object is moving, its observed length appears to be different as measured by someone not moving with it. The formula for calculating this observed length is to multiply the object's rest length by the square root of one minus the quantity of the object's speed squared divided by the speed of light squared. So, an object with rest length of 10 meters and moving at a speed of $2.5\text{x}10^8$ m/s could be observed to have what length? Let the speed of light equal $3\text{x}10^8$ m/s. ---------- 60=_____m

51C-61.

SPHERE

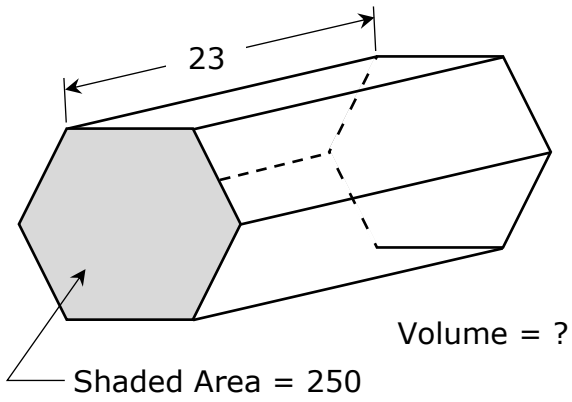


Sphere Surface Area = 8.50×10^{-11}

51C-61 =_____

51C-62.

RIGHT HEXAGONAL PRISM



51C-62 =_____

51C-63. $\frac{14! + 13!}{9!}$ ---------- 63=_____

51C-64. (deg) (160 – 597)sin(510°) ---------- 64=_____

51C-65. (deg) (9.77 + 42.5)sin(403°) ---------- 65=_____

51C-66. (rad) $\frac{\sin(431)}{1680/986}$ ---------- 66=_____

51C-67. (deg) sin(11.2° – 27.2°) + 0.232 ---------- 67=_____

51C-68. (rad) sin[(2.9 – 0.655)(39)] ---------- 68=_____

51C-69. (deg) $\frac{\tan(13°)}{1340 + 1300}$ ---------- 69=_____

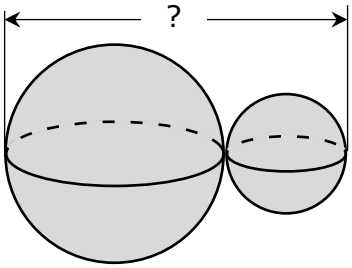
51C-70. $\left[(150)\left(\frac{684}{(1400)(\pi)}\right)\right]^{3/2}$ ---------- 70=_____

51C-71. During the COVID-19 epidemic, Noah's day care went from a normal population of 28 to 18. What percent decrease is this? -------- 71=_____%

51C-72. Two times a number squared minus three times that number is thirty-five. What is the number, if it is negative?---------- 72=_____

51C-73.

SPHERES



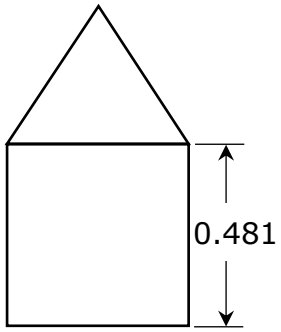
Volume Large Sphere = 267

Volume Small Sphere = 1/3 Volume Large Sphere

51C-73 =_____

51C-74.

SQUARE AND EQUILATERAL TRIANGLE



Total Area = ?

51C-74 =_____

51C-75. $\text{Ln}\left[\frac{80.2 + 61 + 87.7}{292 + 684 - 563}\right]$ ---------- 75=_____

51C-76. $\frac{\text{Log}(7.17 + 42.5)}{5760 - 34000}$ ---------- 76=_____

51C-77. $\text{Log}\sqrt{\frac{448 - 358}{(0.9)(1.31)}}$ ---------- 77=_____

51C-78. $\frac{(e^{0.809})(e^{0.858})(e^{0.859})}{\text{Ln}(2010 + 4810)}$ ---------- 78=_____

51C-79. $1 + 3 + 5 + \ldots + 957$ ---------- 79=_____

51C-80. $-\frac{1}{(3.4)} + \frac{1}{3(3.4)^3} - \frac{1}{5(3.4)^5} + \frac{1}{7(3.4)^7}$ ---------- 80=_____

2021 UIL MS Calculator Test C Answer Key

51C-1 = 124
= 1.24×10^{2}

51C-2 = -25.0
= -2.50×10^{1}

51C-3 = -139
= -1.39×10^{2}

51C-4 = -43.0
= -4.30×10^{1}

51C-5 = -354
= -3.54×10^{2}

51C-6 = -611
= -6.11×10^{2}

51C-7 = 2.86
= 2.86×10^{0}

51C-8 = 14.2
= 1.42×10^{1}

51C-9 = 1.70×10^{6}

51C-10 = 1.19×10^{9}

51C-11 = 19.3
= 1.93×10^{1}

51C-12 = 61.70
Dollar Answer

51C-13 = 9.28
= 9.28×10^{0}

51C-14 = 4.70×10^{-5}

51C-15 = -553
= -5.53×10^{2}

51C-16 = 1.23
= 1.23×10^{0}

51C-17 = 2.40
= 2.40×10^{0}

51C-18 = -0.339
= -3.39×10^{-1}

51C-19 = 0.000151
= 1.51×10^{-4}

51C-20 = 0.286
= 2.86×10^{-1}

51C-21 = -30.4
= -3.04×10^{1}

51C-22 = 0.855
= 8.55×10^{-1}

51C-23 = 0.000266
= 2.66×10^{-4}

51C-24 = 54
Integer Answer

51C-25 = 905
= 9.05×10^{2}

51C-26 = 432
Integer Answer

51C-27 = -1.68×10^{6}

51C-28 = 1.12×10^{-11}

51C-29 = 1.28×10^{-7}

51C-30 = 131
= 1.31×10^{2}

51C-31 = 250
= 2.50×10^{2}

51C-32 = -9.38×10^{-9}

51C-33 = 0.582
= 5.82×10^{-1}

51C-34 = -10.6
= -1.06×10^{1}

51C-35 = 12.5
= 1.25×10^{1}

51C-36 = 34.0
= 3.40×10^{1}

51C-37 = 0.0000417
= 4.17×10^{-5}

51C-38 = 39.6
= 3.96×10^{1}

2021 UIL MS Calculator Test C Answer Key

51C-39 = 121
= 1.21×10^{2}

51C-40 = 2.65×10^{7}

51C-41 = 1.88×10^{10}

51C-42 = 22.8
= 2.28×10^{1}

51C-43 = 1.10
= 1.10×10^{0}

51C-44 = 3.34×10^{13}

51C-45 = 6.28
= 6.28×10^{0}

51C-46 = 0.0765
= 7.65×10^{-2}

51C-47 = 86.4
= 8.64×10^{1}

51C-48 = 377
= 3.77×10^{2}

51C-49 = 1.08×10^{10}

51C-50 = 0.144
= 1.44×10^{-1}

51C-51 = 1.61×10^{6}

51C-52 = 1250
= 1.25×10^{3}

51C-53 = 1.26×10^{9}

51C-54 = -836000
= -8.36×10^{5}

51C-55 = 6000
= 6.00×10^{3}

51C-56 = 0.129
= 1.29×10^{-1}

51C-57 = -1.21
= -1.21×10^{0}

51C-58 = 2.14
= 2.14×10^{0}

51C-59 = 6.16
= 6.16×10^{0}

51C-60 = 5.53
= 5.53×10^{0}

51C-61 = 2.60×10^{-6}

51C-62 = 5750
= 5.75×10^{3}

51C-63 = 257000
= 2.57×10^{5}

51C-64 = -219
= -2.19×10^{2}

51C-65 = 35.6
= 3.56×10^{1}

51C-66 = -0.332
= -3.32×10^{-1}

51C-67 = -0.0436
= -4.36×10^{-2}

51C-68 = -0.398
= -3.98×10^{-1}

51C-69 = 8.75×10^{-5}

51C-70 = 113
= 1.13×10^{2}

51C-71 = 35.7
= 3.57×10^{1}

51C-72 = -3.50
= -3.50×10^{0}

51C-73 = 13.5
= 1.35×10^{1}

51C-74 = 0.332
= 3.32×10^{-1}

51C-75 = -0.590
= -5.90×10^{-1}

51C-76 = -6.01×10^{-5}

51C-77 = 0.941
= 9.41×10^{-1}

51C-78 = 1.42
= 1.42×10^{0}

51C-79 = 229000
= 2.29×10^{5}

51C-80 = -0.286
= -2.86×10^{-1}

CONTESTANT NUMBER:

FOR GRADER USE ONLY Test/Tiebreaker (#correct) _____/_____ Initials_____ _____/_____ Initials_____ **Papers contending to place:** _____/_____ Initials_____	**University Interscholastic League** **A+ Chess Puzzle Contest • Answer Sheet**

Write your contestant number in the upper right corner, and circle your grade below.

Circle Grade Level: 2 3 4 5 6 7 8

Test *(circle only one answer for each question)*

1.	a	b	c	d	**11.**	a	b	c	d
2.	a	b	c	d	**12.**	a	b	c	d
3.	a	b	c	d	**13.**	a	b	c	d
4.	a	b	c	d	**14.**	a	b	c	d
5.	a	b	c	d	**15.**	a	b	c	d
6.	a	b	c	d	**16.**	a	b	c	d
7.	a	b	c	d	**17.**	a	b	c	d
8.	a	b	c	d	**18.**	a	b	c	d
9.	a	b	c	d	**19.**	a	b	c	d
10.	a	b	c	d	**20.**	a	b	c	d

Questions #17- 20 only for Grades 4-8

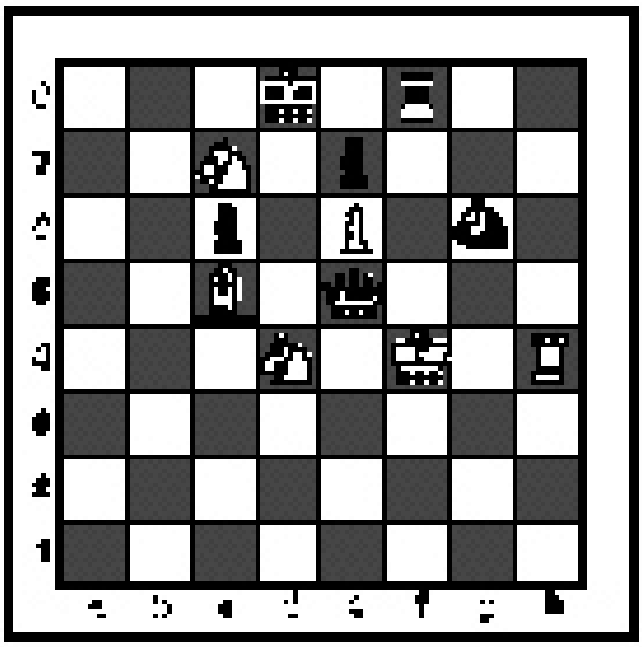
Tiebreaker *(circle only one answer for each question)*

1.	a	b	c	d	**5.**	a	b	c	d
2.	a	b	c	d	**6.**	a	b	c	d
3.	a	b	c	d	**7.**	a	b	c	d
4.	a	b	c	d	**8.**	a	b	c	d

INVITATIONAL 2020-2021

A+ ACADEMICS

University Interscholastic League



Chess Puzzle Solving

grades 6, 7, 8

DO NOT OPEN TEST
UNTIL TOLD TO DO SO

How to read and answer questions on this test

• To answer the questions on this test, you'll need to know how to read chess moves. It's simple to do.

• Every square on the board has an "address" made up of a letter and a number.

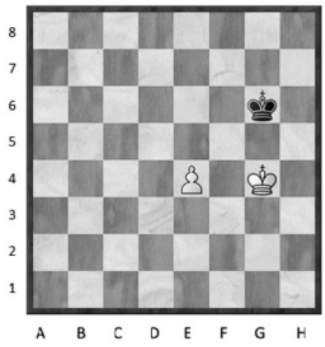
Piece Names	**Each chessman can also be represented by a symbol, except for the pawn.** (Figurine Notation)
King	♔
Queen	♕
Rook	♖
Bishop	♗
Knight	♘
Pawn	**a-h** (We write the file it's on.)

• To make them easy to read, the questions on this test use the figurine piece symbols on the right, above.

• When answering the puzzle questions, remember that white pawns move "up" the diagrams. Black pawns move "down" the diagrams.

At right are two sample moves.

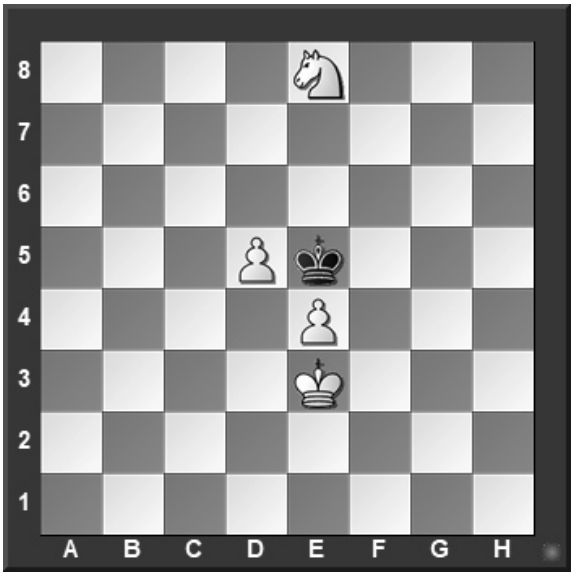
If you look closely at the diagrams in the questions below, you'll see that the frame around the diagram labels the ranks (1-8) and files (a-h) to help you.



White has just played **e4**.

Black has just played ... **Nf6**.

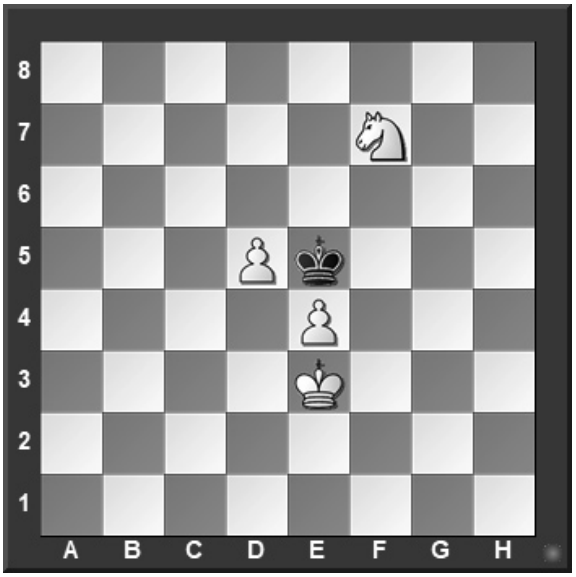
#1. Black to move



What term best describes this situation?

a) Black is in checkmate.
b) Black is in stalemate.
c) Black is in check.
d) None of the above.

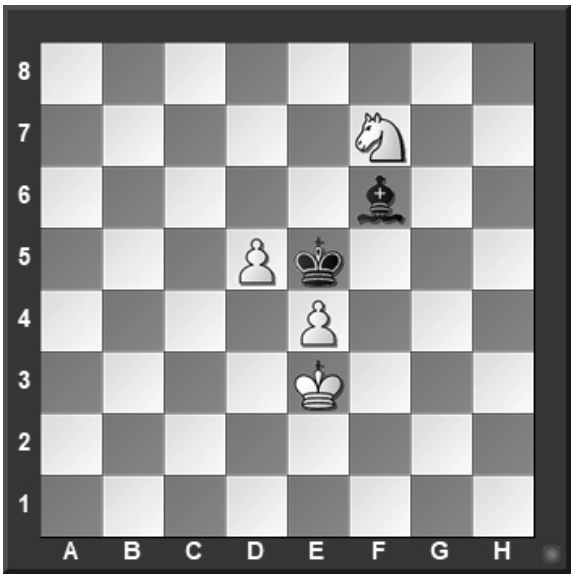
#2. Black to move



What term best describes this situation?

a) Black is in checkmate.
b) Black is in stalemate.
c) Black is in check.
d) None of the above.

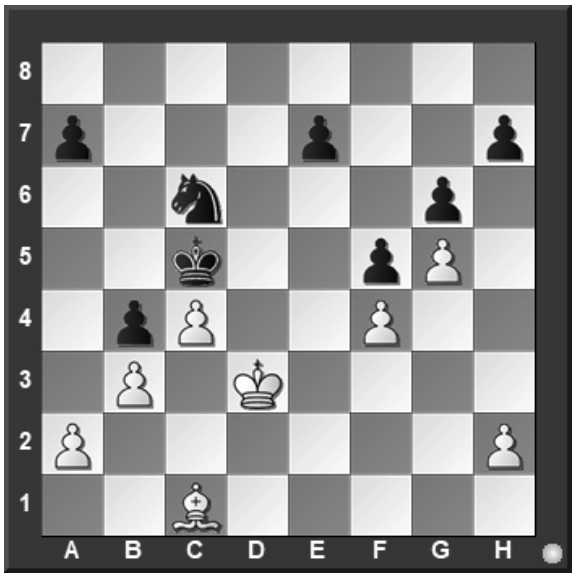
#3. Black to move



What term best describes this situation?

a) Black is in checkmate.
b) Black is in stalemate.
c) Black is in check.
d) None of the above.

#4. White to move



Black just played f7 to f5. Which pawn can be captured?

a) Black's h-pawn.
b) Black's g-pawn.
c) Black's f-pawn.
d) White can't capture a pawn.

#5. White to move

Which side has material advantage?

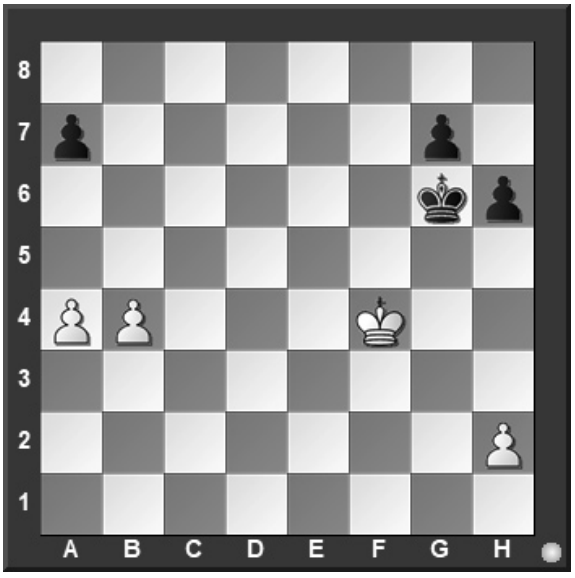
a) White.
b) Black.
c) It is even.
d) It is not possible to tell.

#6. White to move

Which move is possible for White?

a) Short Castle.
b) Long Castle.
c) To capture the knight.
d) To capture the bishop.

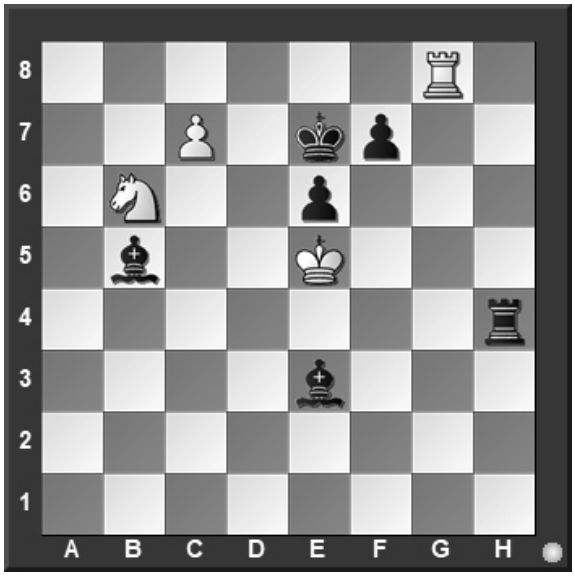
#7. White to move



What is the outcome of the game?

a) White wins.
b) Black wins.
c) Draw.
d) It is not possible to tell.

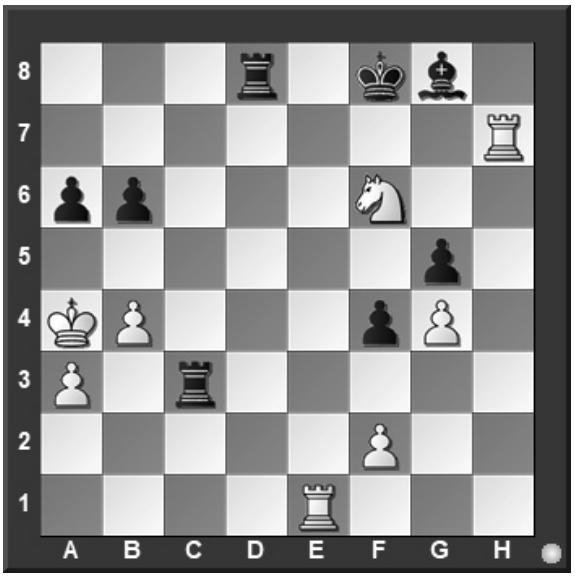
#8. White to move



What piece should White promote to?

a) Queen
b) Rook
c) Bishop
d) Knight

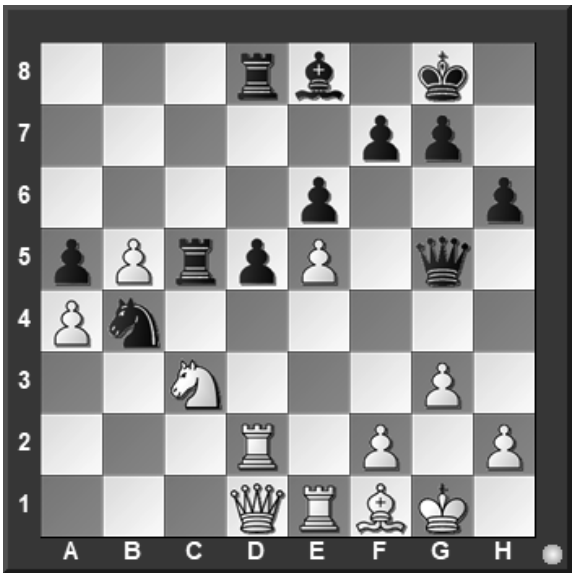
#9. White to move



If White can checkmate Black in two moves, what's the *first* move?

a) ♖**h8**
b) ♖**e8**
c) ♘×**g8**
d) ♘**d7**

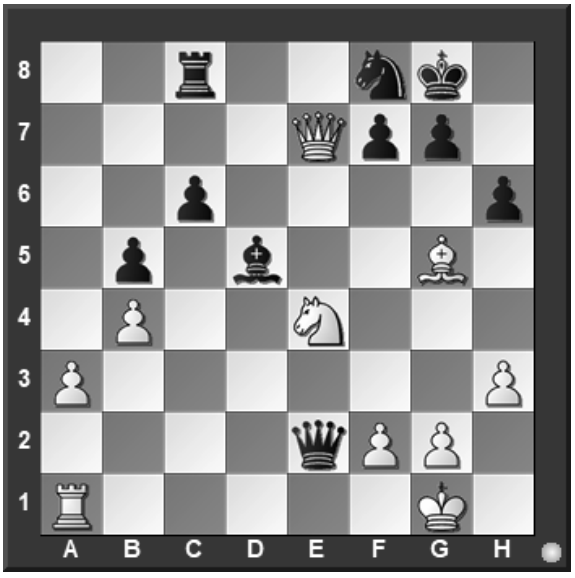
#10. White to move



What is White's best move?

a) ♘**a2**
b) ♘**e4**
c) **f4**
d) **h4**

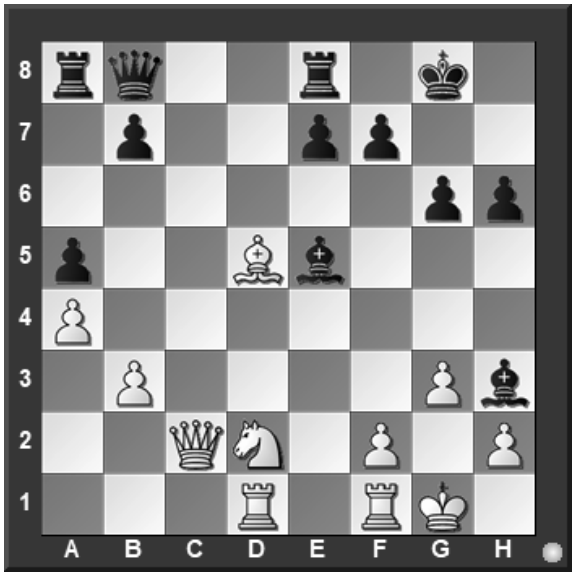
#11. White to move



What is White's best move?

a) ♘**d6**
b) ♘**f6**
c) ♘**c3**
d) ♗**e3**

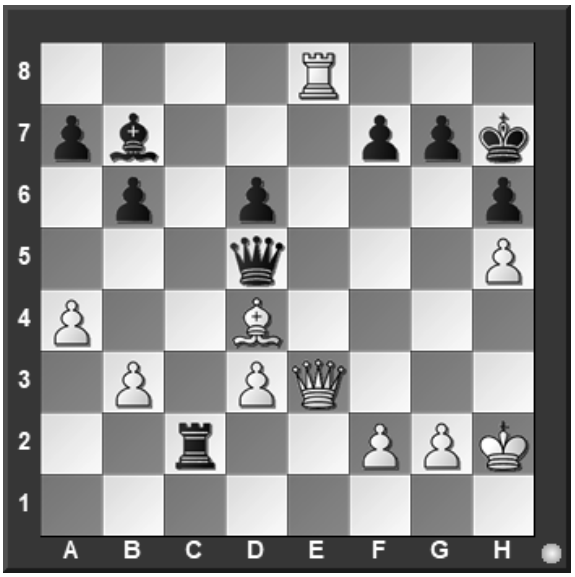
#12. White to move



What is White's best move?

a) ♕×**g6**
b) ♖**fe1**
c) ♗**g2**
d) ♘**c4**

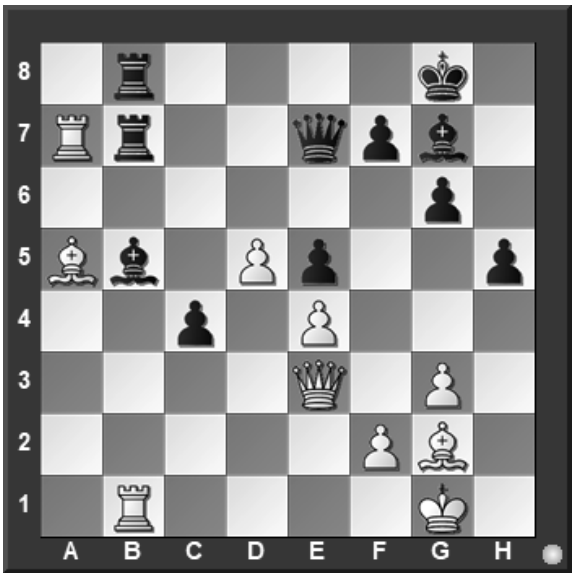
#13. White to move



If White can checkmate Black in three moves, what is the *first* move?

a) ♕×**h6**
b) ♖**h8**
c) ♕**e4**
d) ♗×**g7**

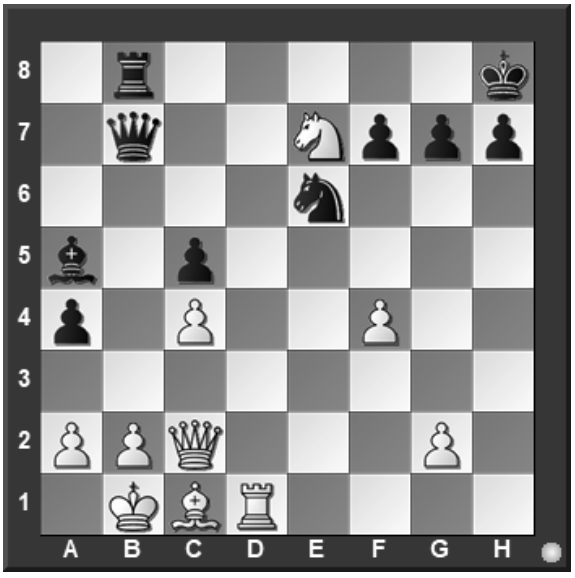
#14. White to move



What is White's best move?

a) ♖×**b7**
b) ♖×**b5**
c) ♗**b4**
d) ♗**b6**

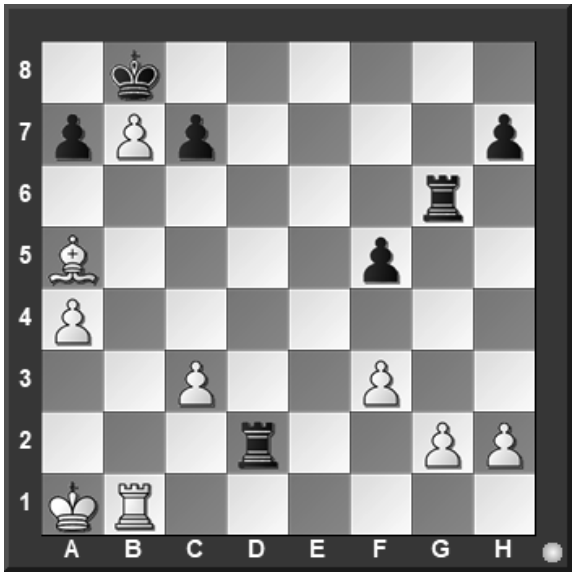
#15. White to move



What is White's best move?

a) ♕×**a4**
b) ♕×**h7**
c) ♖**h1**
d) ♘**d5**

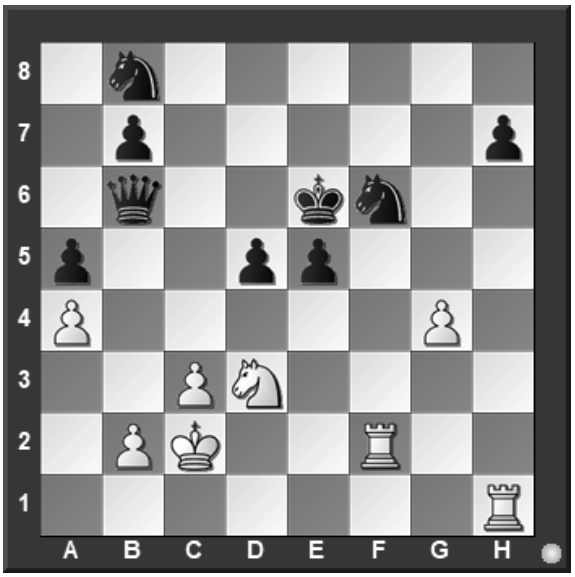
#16. White to move



What is White's best move?

a) ♗×**c7**
b) **c4**
c) **g4**
d) ♖**e1**

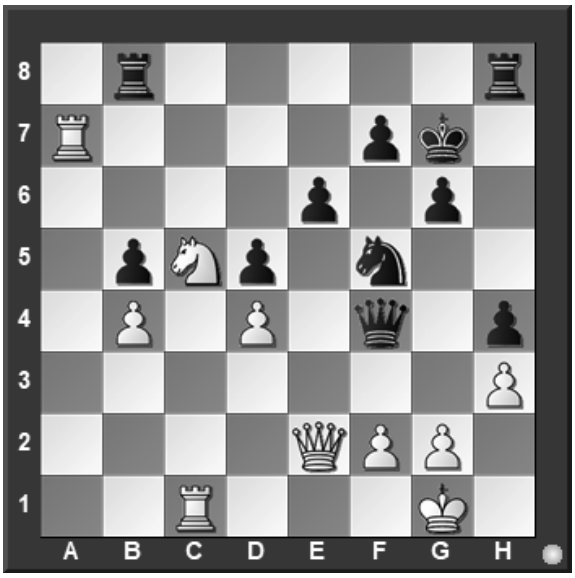
#17. White to move



What is White's best move?

a) ♖**h6**
b) ♖×**f6**
c) ♖**e2**
d) **g5**

#18. White to move



What is White's best move?

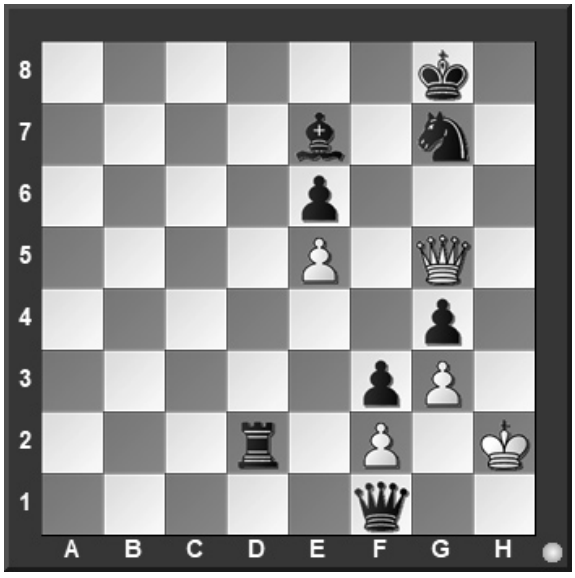
a) ♖**d1**
b) ♖×**f7**
c) ♘×**e6**
d) ♕**e5**

#19. White to move

How many moves does it take to checkmate Black?

a) 1
b) 2
c) 3
d) There is no checkmate

#20. White to move



What piece should White capture?

a) Rook
b) Bishop
c) Knight
d) Pawn

University Interscholastic League
A+ Chess Puzzle Contest
2020-2021 Invitational — Grades 6, 7, and 8
ANSWER KEY

Test

1. B
2. C
3. A
4. C
5. A
6. C
7. A
8. D
9. B
10. B
11. B
12. A
13. B
14. B
15. B
16. A
17. B
18. C
19. B
20. C

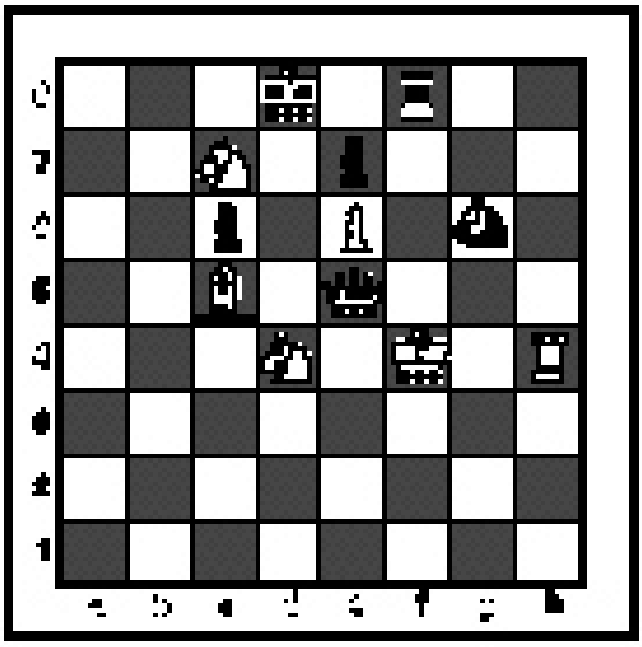
Tiebreaker

1. D
2. A
3. A
4. A
5. B
6. B
7. B
8. D

INVITATIONAL 2020-2021

A+ ACADEMICS

University Interscholastic League

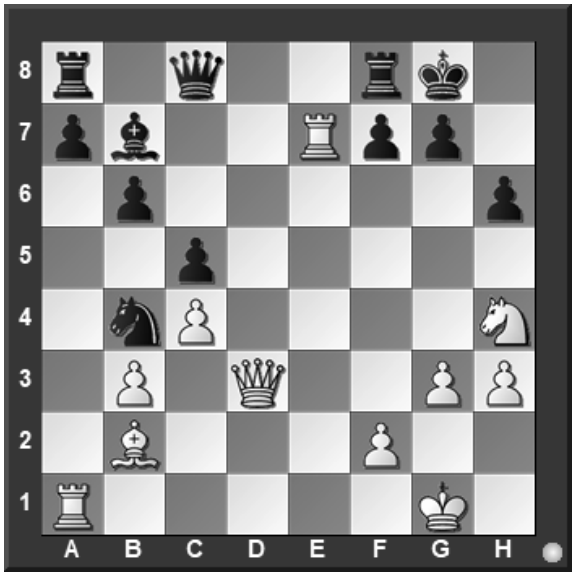


Chess Puzzle Solving

TIEBREAKER - ALL GRADES

DO NOT OPEN TEST
UNTIL TOLD TO DO SO

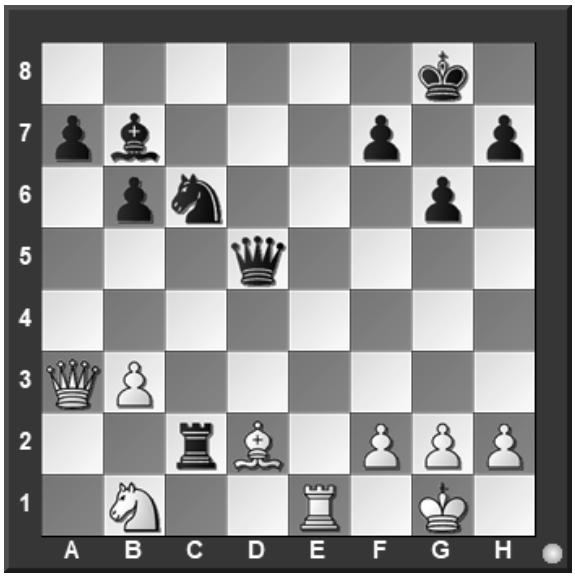
#1. White to move



What is White's best move?

a) ♕d6
b) ♕d7
c) ♕f5
d) ♕g6

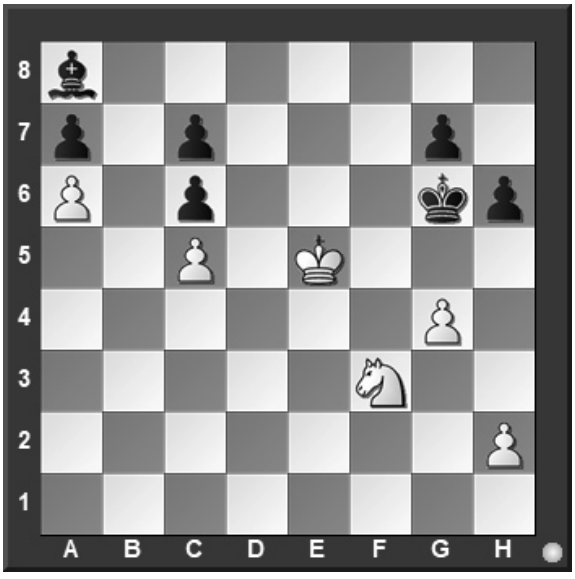
#2. White to move



If White can checkmate Black in three moves, what's the *first* move?

a) ♕f8
b) ♖e8
c) ♗h6
d) ♘c3

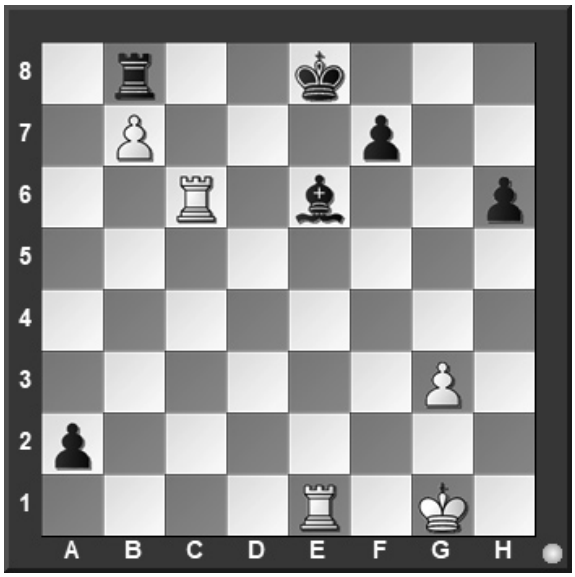
#3. White to move



With the best play, what is the outcome of the game?

a) White wins.
b) Black wins.
c) Draw.
d) It is not possible to tell.

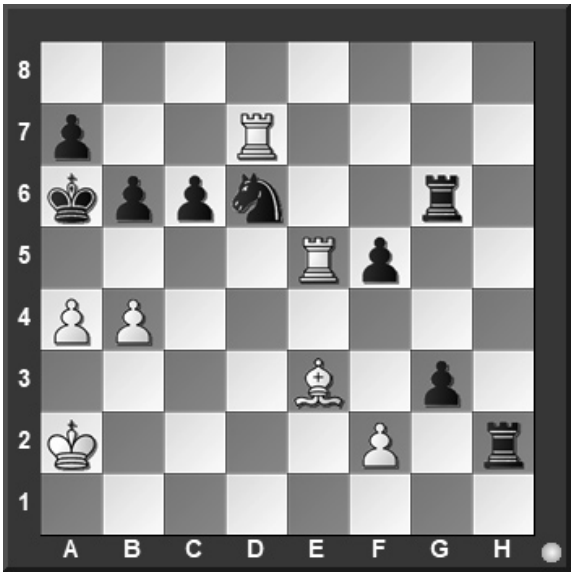
#4. White to move



What is White's best move?

a) ♖c8
b) ♖a6
c) ♖b6
d) ♖e×e6

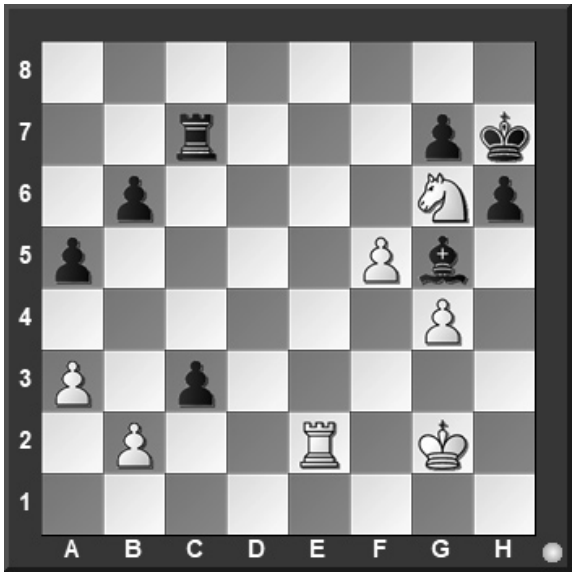
#5. White to move



How many moves does it take to checkmate Black?

a) 1
b) 2
c) 3
d) There is no checkmate

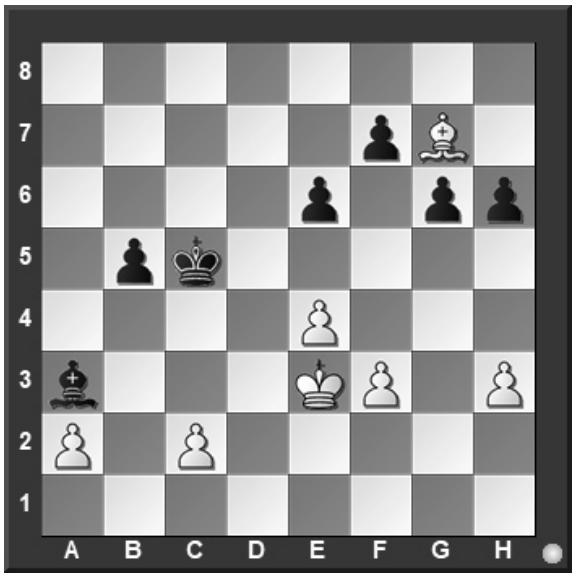
#6. White to move



What is White's best move?

a) ♘**f8**
b) ♖**e8**
c) **b×c3**
d) ♖**c2**

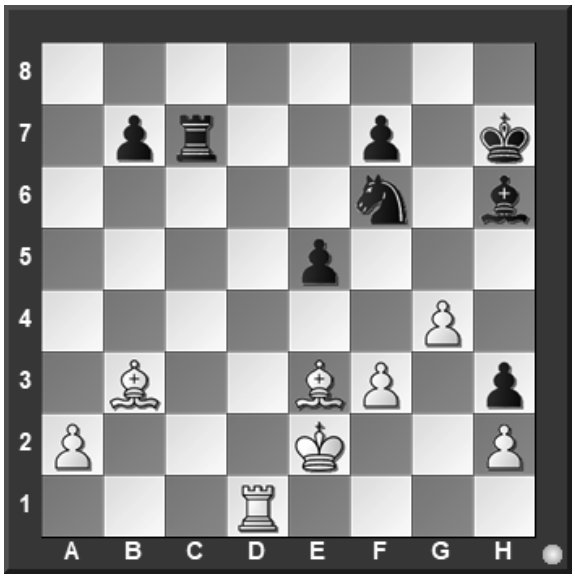
#7. White to move



What is White's best move?

a) ♗**×h6**
b) ♗**f8**
c) ♔**d3**
d) ♔**d2**

#8. White to move



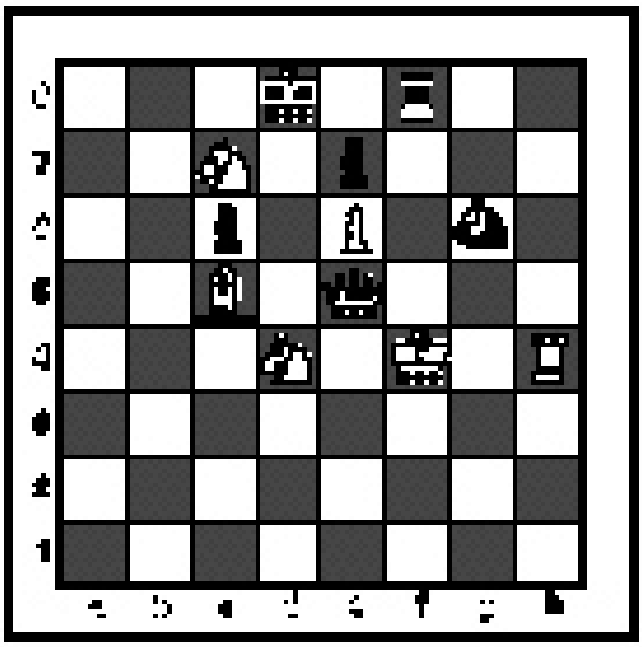
What is White's best move?

a) ♗**×h6**
b) ♗**b6**
c) ♖**d6**
d) **g5**

FALL/WINTER DISTRICT 2020-2021

A+ ACADEMICS

University Interscholastic League



Chess Puzzle Solving

grades 6, 7, 8

DO NOT OPEN TEST
UNTIL TOLD TO DO SO

How to read and answer questions on this test

• To answer the questions on this test, you'll need to know how to read chess moves. It's simple to do.

• Every square on the board has an "address" made up of a letter and a number.

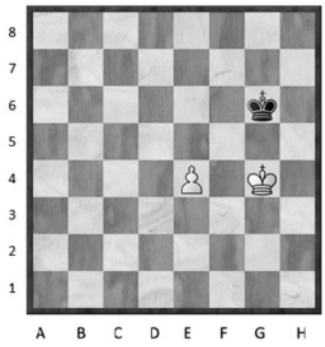
Piece Names	**Each chessman can also be represented by a symbol, except for the pawn.** (Figurine Notation)
King	♔
Queen	♕
Rook	♖
Bishop	♗
Knight	♘
Pawn	**a-h** (We write the file it's on.)

• To make them easy to read, the questions on this test use the figurine piece symbols on the right, above.

• When answering the puzzle questions, remember that white pawns move "up" the diagrams. Black pawns move "down" the diagrams.

At right are two sample moves.

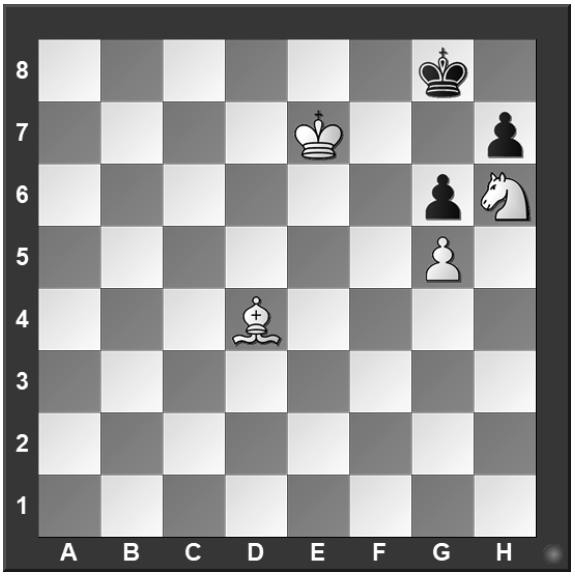
If you look closely at the diagrams in the questions below, you'll see that the frame around the diagram labels the ranks (1-8) and files (a-h) to help you.



White has just played **e4**.

Black has just played ... **Nf6**.

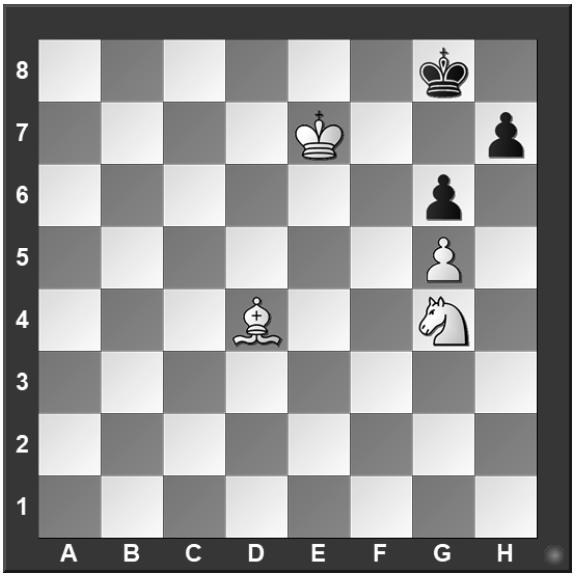
#1. Black to move



What term best describes this situation?

a) Black is in checkmate.
b) Black is in stalemate.
c) Black is in check.
d) None of the above.

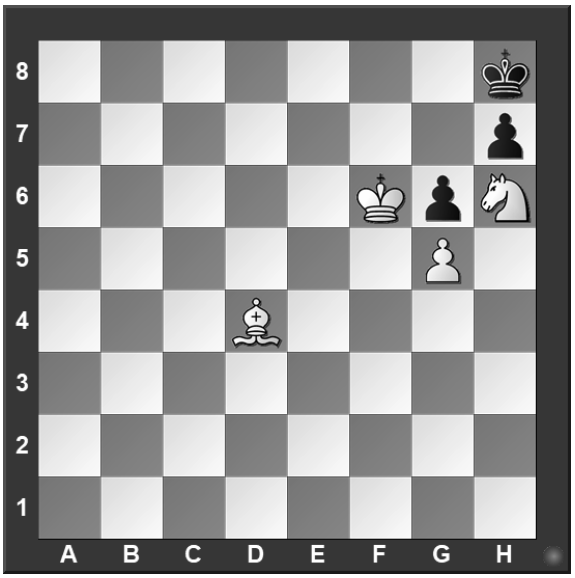
#2. Black to move



What term best describes this situation?

a) Black is in checkmate.
b) Black is in stalemate.
c) Black is in check.
d) None of the above.

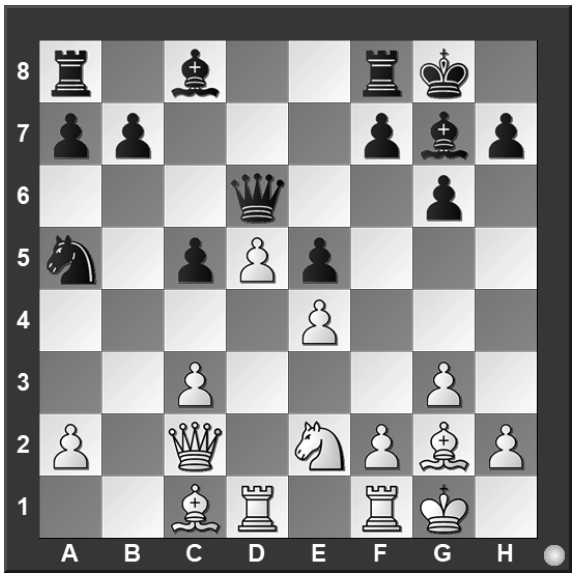
#3. Black to move



What term best describes this situation?

a) Black is in checkmate.
b) Black is in stalemate.
c) Black is in check.
d) None of the above.

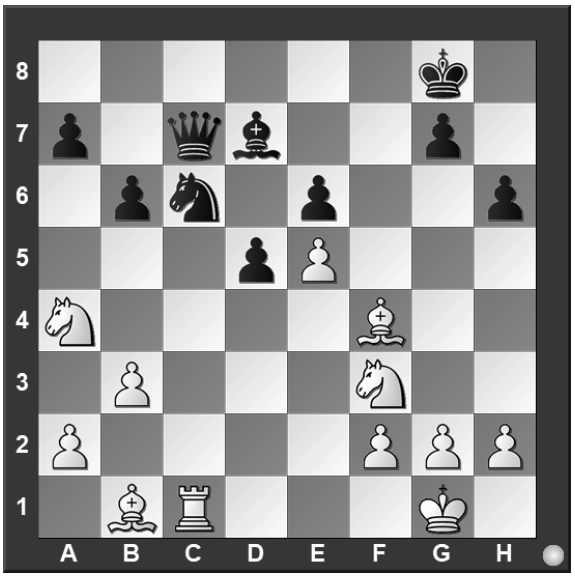
#4. White to move



Black just played e7 to e5. Which pawn can be captured?

a) Black's f-pawn.
b) Black's e-pawn.
c) Black's c-pawn.
d) White can't capture a pawn.

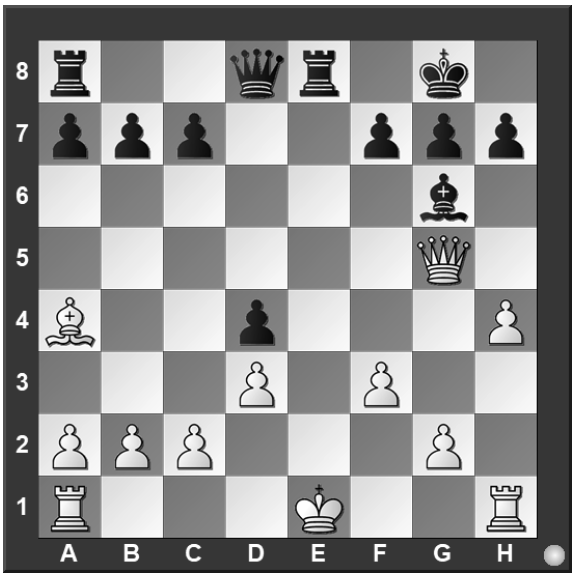
#5. White to move



Which side has material advantage?

a) White.
b) Black.
c) It is even.
d) It is not possible to tell.

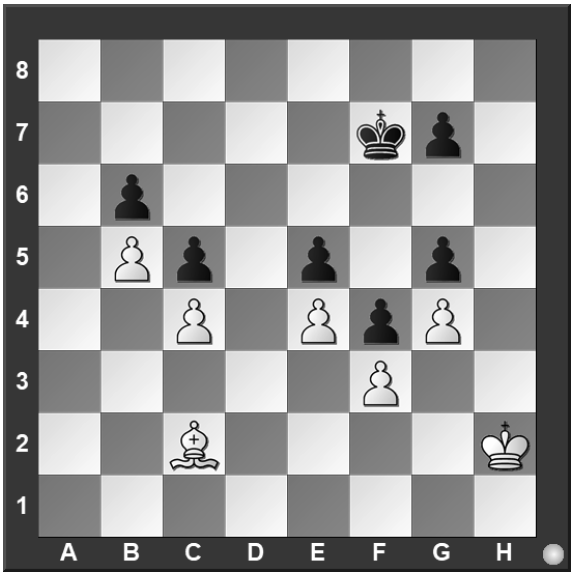
#6. White to move



Which move is possible for White?

a) Short Castle.
b) Long Castle.
c) To capture the rook.
d) To capture the queen.

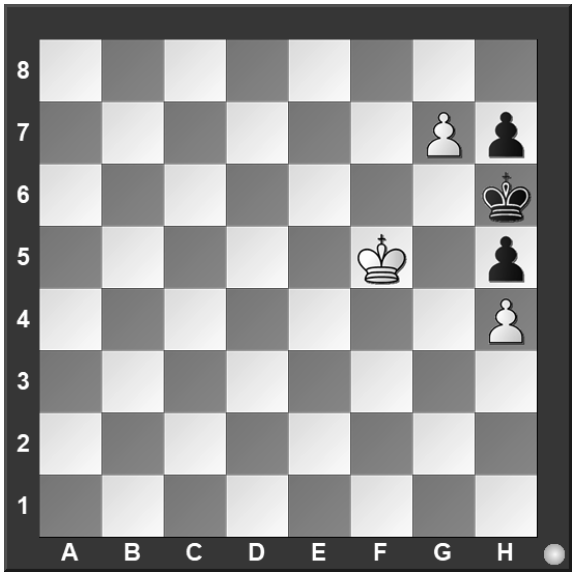
#7. White to move



What is the outcome of the game?

a) White wins.
b) Black wins.
c) Draw.
d) It is not possible to tell.

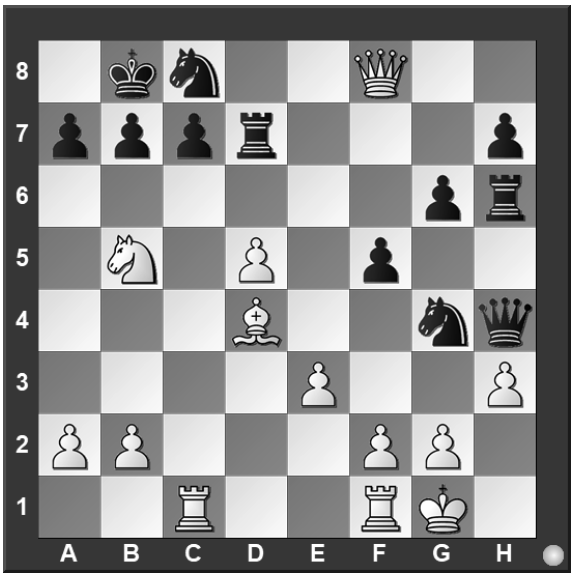
#8. White to move



What piece should White promote to?

a) Queen
b) Rook
c) Bishop
d) Knight

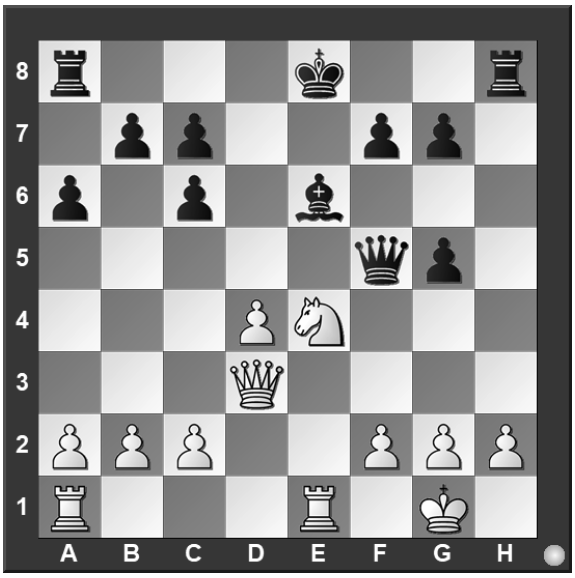
#9. White to move



If White can checkmate Black in two moves, what's the *first* move?

a) ♘×**a7**
b) ♗×**a7**
c) ♖×**c7**
d) ♘**d6**

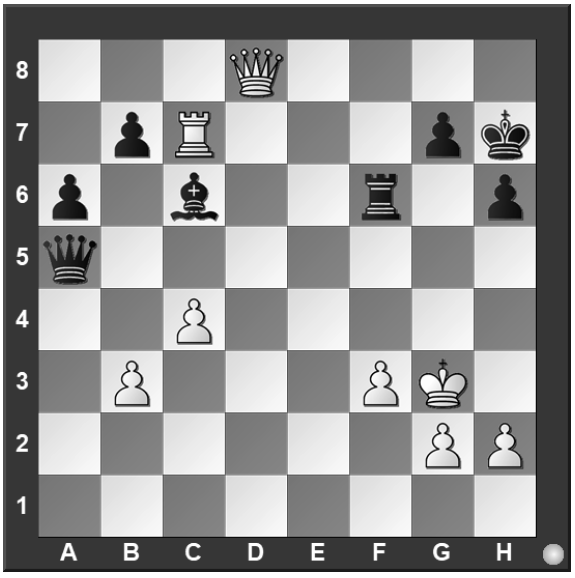
#10. White to move



What is White's best move?

a) ♘**d6**
b) ♘**f6**
c) ♕**g3**
d) **c4**

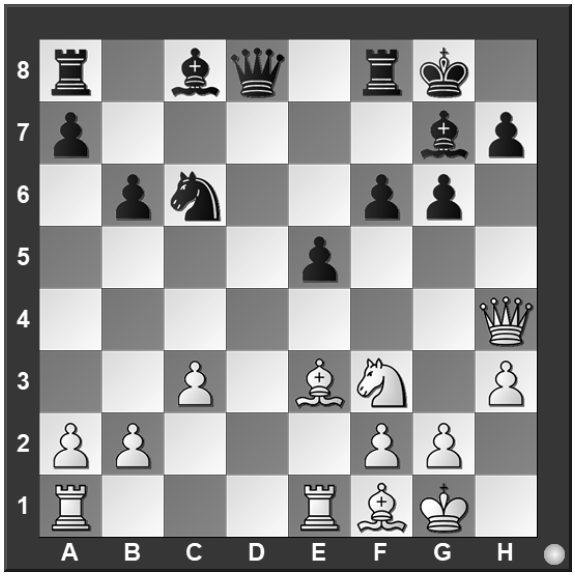
#11. White to move



What is White's best move?

a) ♕**e7**
b) ♕×**f6**
c) ♖×**g7**
d) ♖**c8**

#12. White to move



What is White's best move?

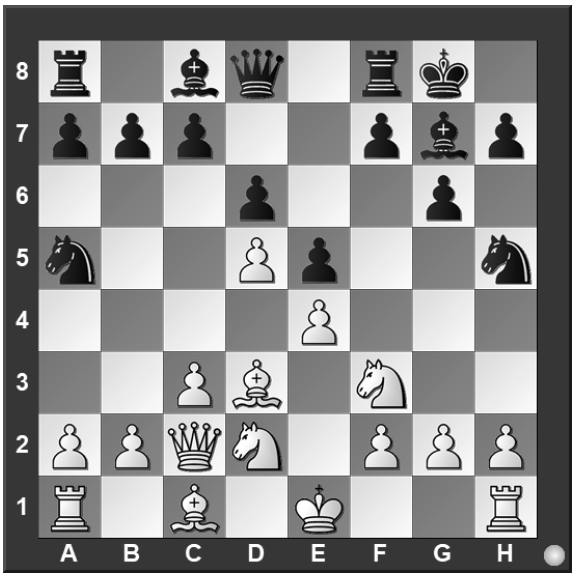
a) ♗**c4**
b) ♕**c4**
c) ♖**ad1**
d) ♗**b5**

#13. White to move

If White can checkmate Black in two moves, what is the *first* move?

a) ♖**h8**
b) ♖**d3**
c) ♗×**g6**
d) ♘**e5**

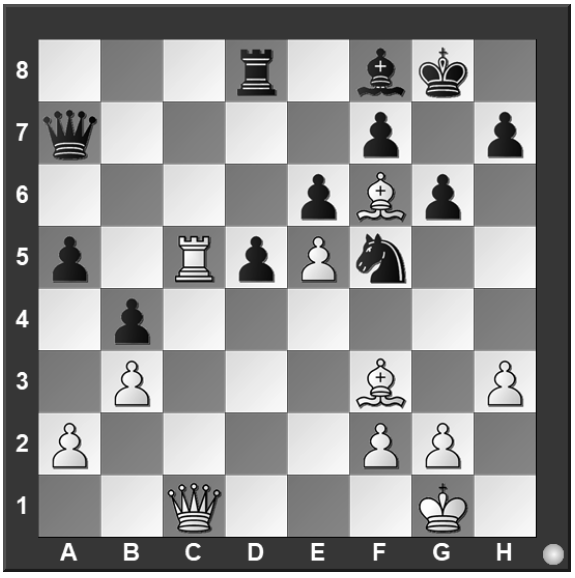
#14. White to move



What is White's best move?

a) **0-0**
b) **g3**
c) ♘**c4**
d) **b4**

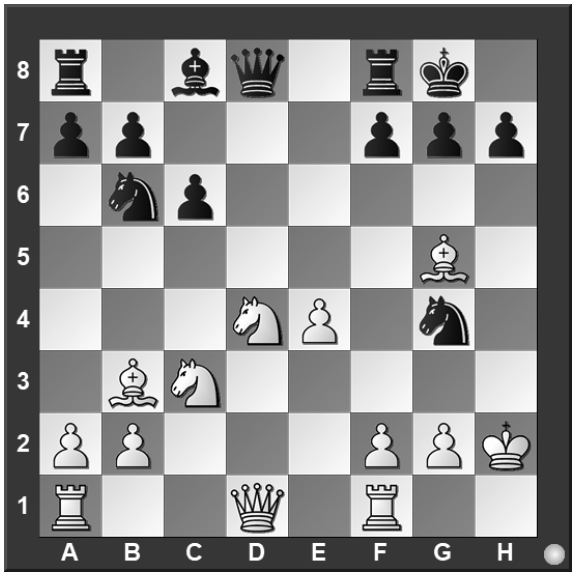
#15. White to move



What is White's best move?

a) ♖×**a5**
b) ♖**c2**
c) ♗×**d8**
d) ♖**c7**

#16. White to move



What is White's best move?

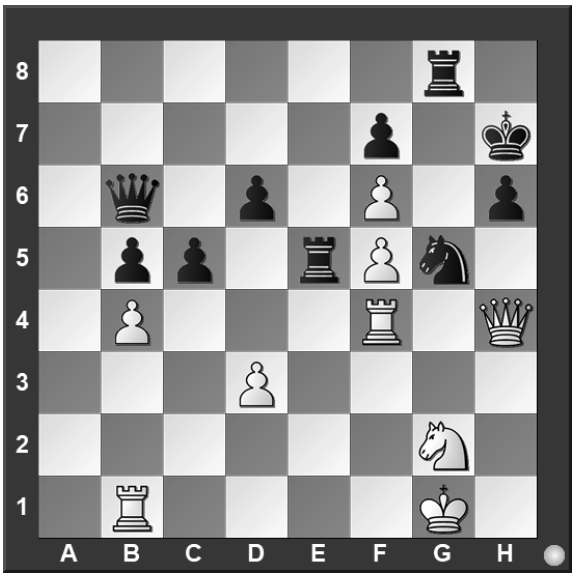
a) ♔**g1**
b) ♗×**d8**
c) ♕×**g4**
d) ♔**g3**

#17. White to move

What is White's best move?

a) ♖**e7**
b) ♖×**c8**
c) ♕×**f5**
d) **a4**

#18. White to move



What is White's best move?

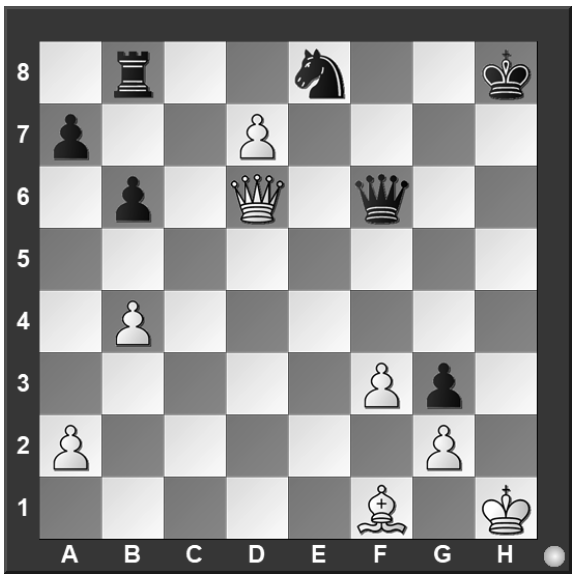
a) ♔**f1**
b) ♕×**h6**
c) ♔**h2**
d) ♖**bf1**

#19. White to move

How many moves does it take to checkmate Black?

a) 1
b) 2
c) 3
d) There is no checkmate

#20. White to move



What piece should White capture?

a) Queen
b) Rook
c) Knight
d) pawn

University Interscholastic League
A+ Chess Puzzle Contest
2020-2021 Fall/Winter — Grades 6, 7, and 8
ANSWER KEY

Test

1. A
2. D
3. B
4. B
5. A
6. C
7. C
8. D
9. B
10. A
11. C
12. B
13. A
14. D
15. D
16. C
17. B
18. B
19. A
20. C

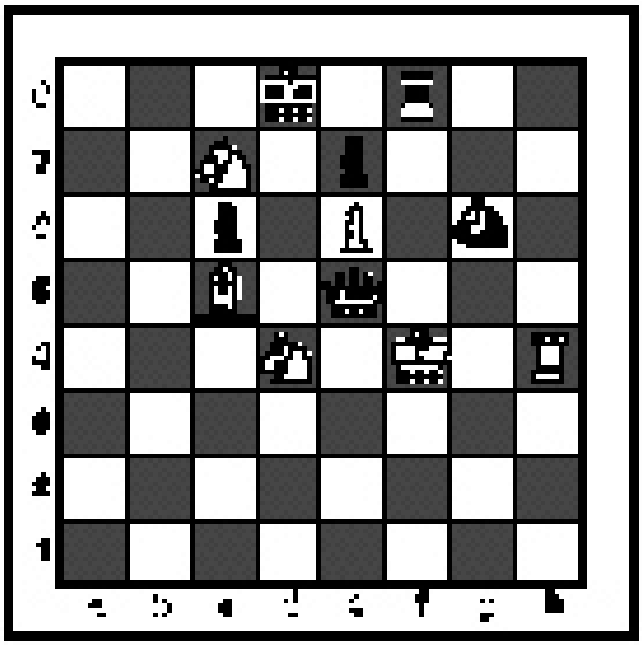
Tiebreaker

1. B
2. C
3. A
4. A
5. B
6. A
7. A
8. B

FALL/WINTER DISTRICT 2020-2021

A+ ACADEMICS

University Interscholastic League



Chess Puzzle Solving

TIEBREAKER - ALL GRADES

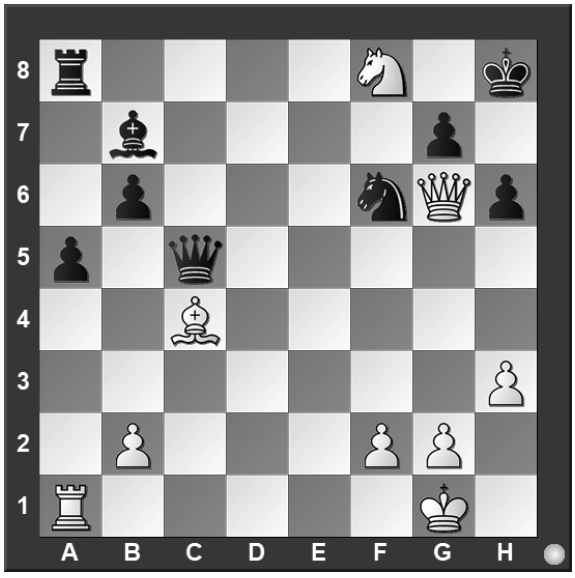
DO NOT OPEN TEST
UNTIL TOLD TO DO SO

#1. White to move

What is White's best move?

a) ♕**b2**
b) ♘**f7**
c) ♕×**b6**
d) ♕×**d8**

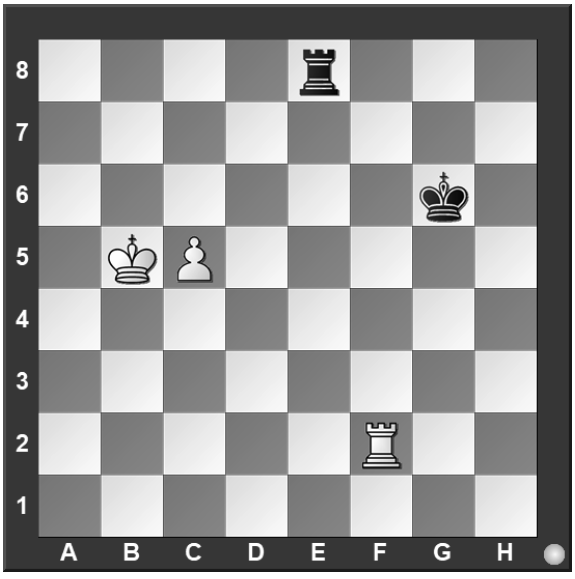
#2. White to move



If White can checkmate Black in two moves, what's the *first* move?

a) ♘**e6**
b) ♕×**g7**
c) ♕**h7**
d) ♗**d3**

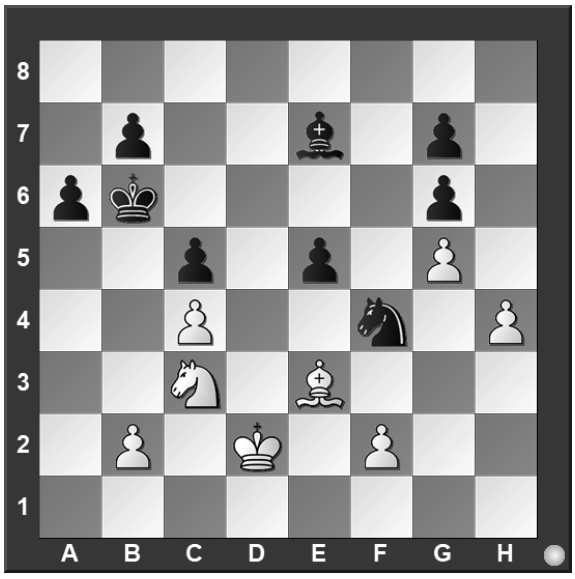
#3. White to move



With the best play, what is the outcome of the game?

a) White wins.
b) Black wins.
c) Draw.
d) It is not possible to tell.

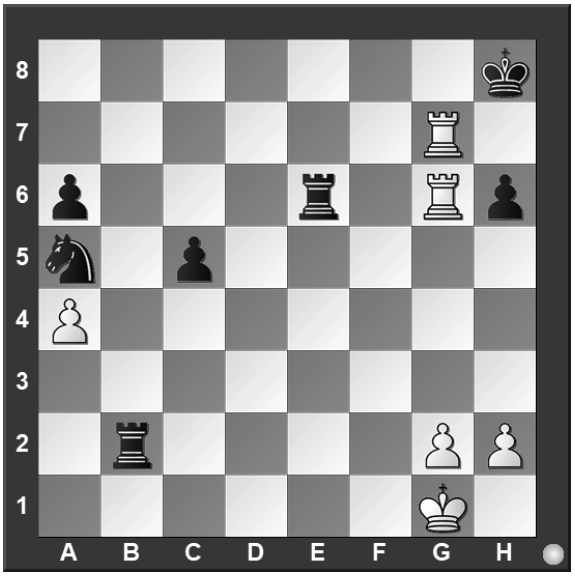
#4. White to move



What is White's best move?

a) ♗×**f4**
b) ♘**d5**
c) ♘**a4**
d) ♘**e4**

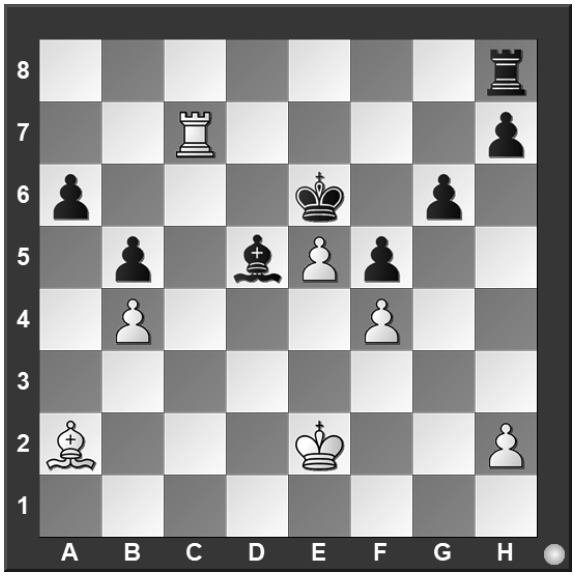
#5. White to move



How many moves does it take to checkmate Black?

a) 1
b) 2
c) 3
d) There is no checkmate

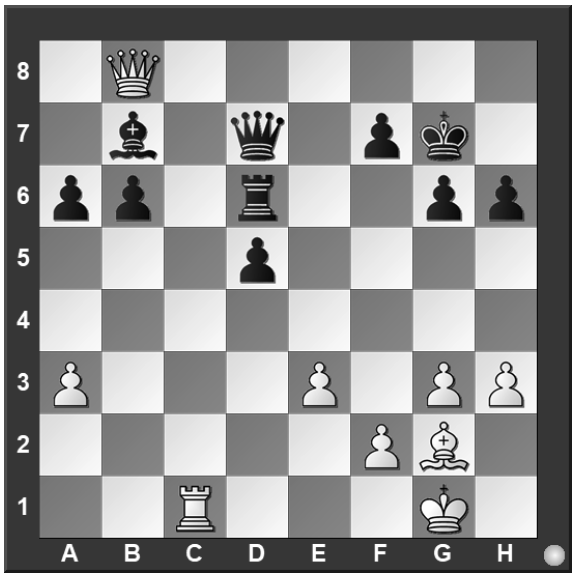
#6. White to move



What is White's best move?

a) ♖c6
b) ♗×d5
c) ♖c5
d) ♖a7

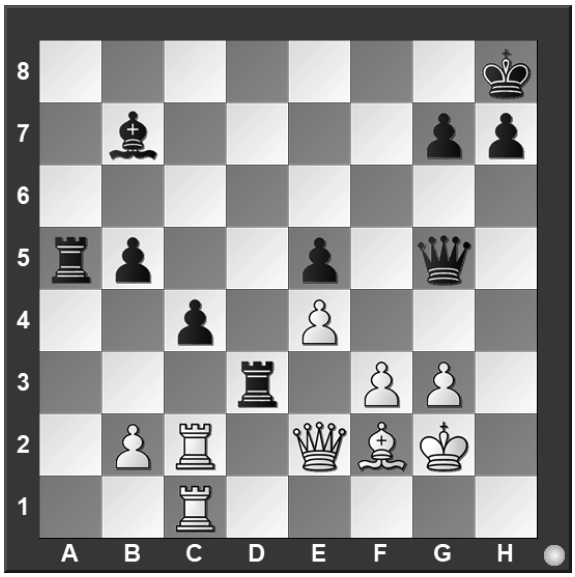
#7. White to move



What is White's best move?

a) ♖c7
b) h4
c) ♕c7
d) ♗f3

#8. White to move



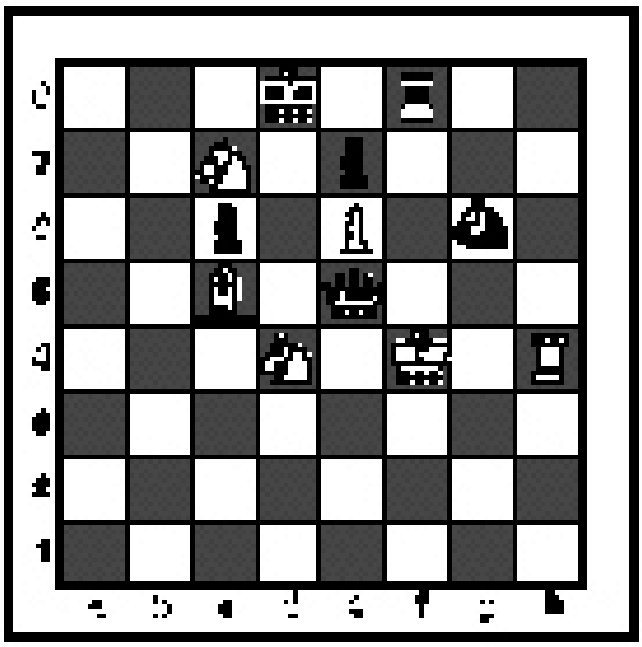
What is White's best move?

a) ♖d1
b) ♕×d3
c) b4
d) ♗b6

SPRING DISTRICT 2020-2021

A+ ACADEMICS

University Interscholastic League



Chess Puzzle Solving

grades 6, 7, 8

DO NOT OPEN TEST
UNTIL TOLD TO DO SO

How to read and answer questions on this test

• To answer the questions on this test, you'll need to know how to read chess moves. It's simple to do.

• Every square on the board has an "address" made up of a letter and a number.

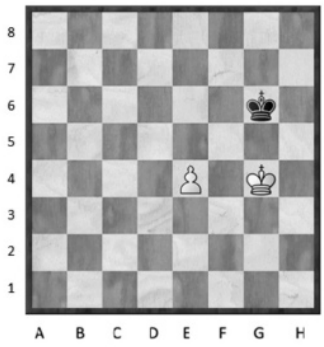
Piece Names	**Each chessman can also be represented by a symbol, except for the pawn.** (Figurine Notation)
King	♔
Queen	♕
Rook	♖
Bishop	♗
Knight	♘
Pawn	**a-h** (We write the file it's on.)

• To make them easy to read, the questions on this test use the figurine piece symbols on the right, above.

• When answering the puzzle questions, remember that white pawns move "up" the diagrams. Black pawns move "down" the diagrams.

At right are two sample moves.

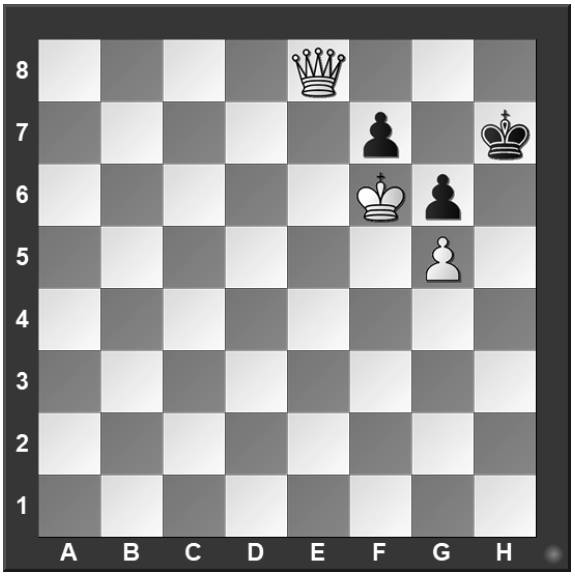
If you look closely at the diagrams in the questions below, you'll see that the frame around the diagram labels the ranks (1-8) and files (a-h) to help you.



White has just played **e4**.

Black has just played ... **Nf6**.

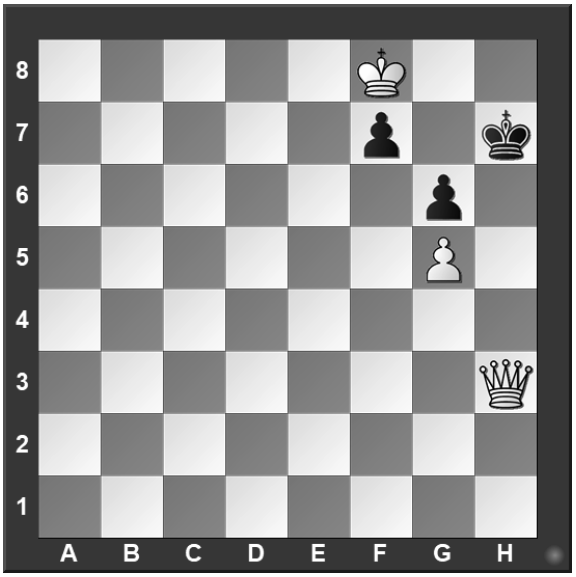
#1. Black to move



What term best describes this situation?

a) Black is in checkmate.
b) Black is in stalemate.
c) Black is in check.
d) None of the above.

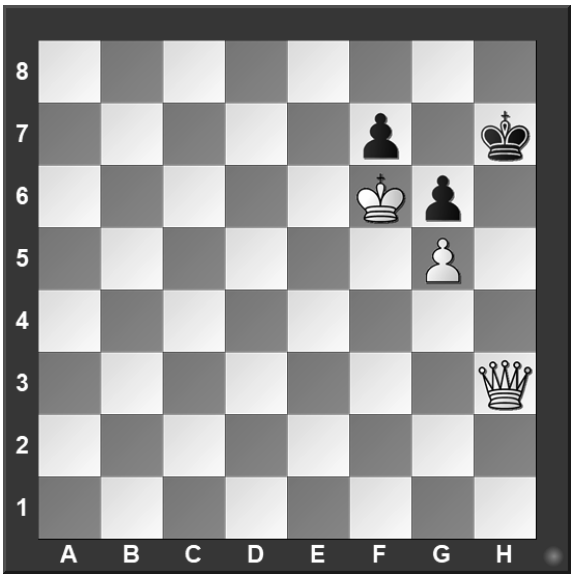
#2. Black to move



What term best describes this situation?

a) Black is in checkmate.
b) Black is in stalemate.
c) Black is in check.
d) None of the above.

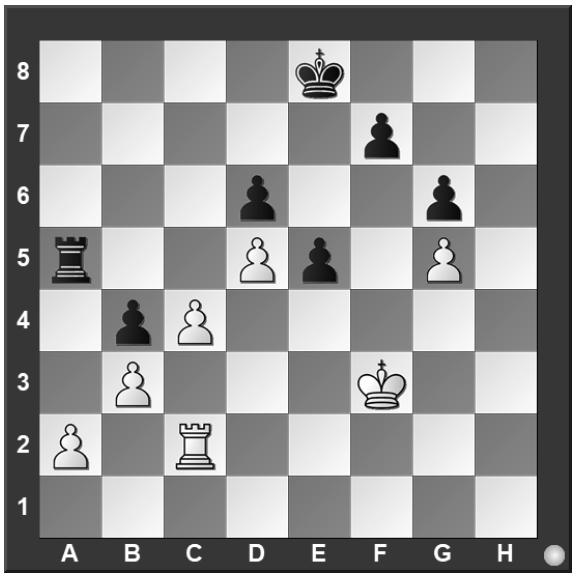
#3. Black to move



What term best describes this situation?

a) Black is in checkmate.
b) Black is in stalemate.
c) Black is in check.
d) None of the above.

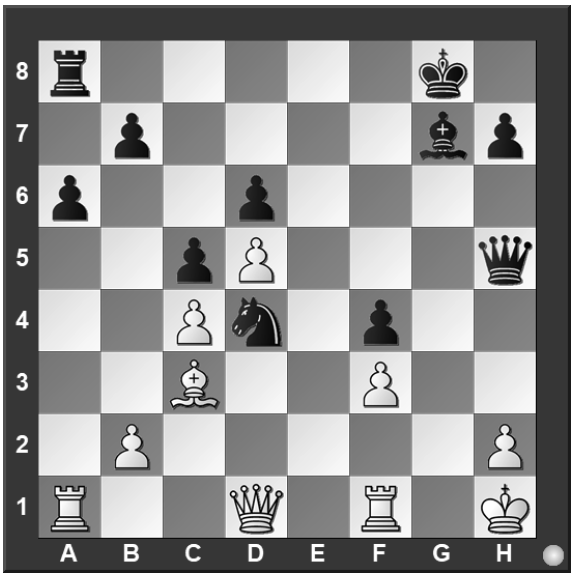
#4. White to move



Black just played e7 to e5. Which pawn can be captured?

a) Black's f-pawn.
b) Black's e-pawn.
c) Black's d-pawn.
d) White can't capture a pawn.

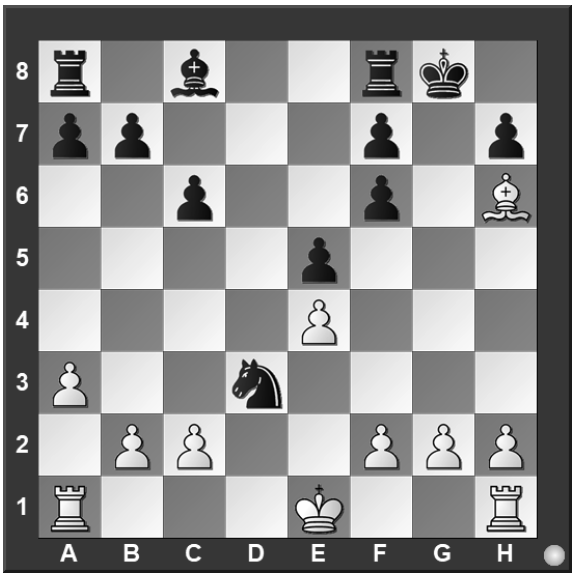
#5. White to move



Which side has material advantage?

a) White.
b) Black.
c) It is even.
d) It is not possible to tell.

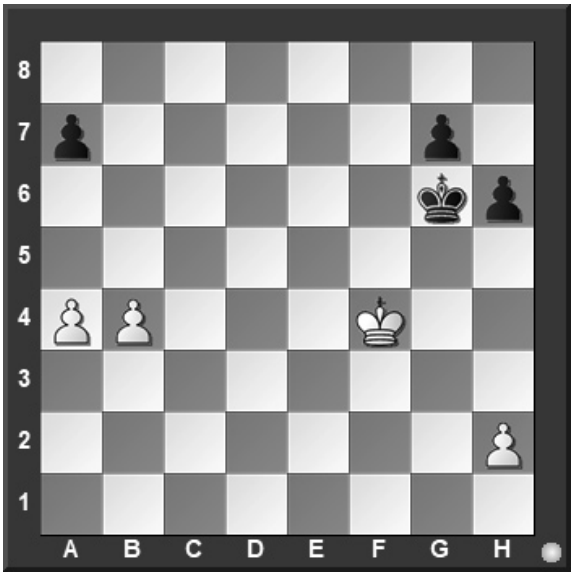
#6. White to move



Which move is possible for White?

a) Short Castle.
b) Long Castle.
c) To capture the knight.
d) To capture the rook.

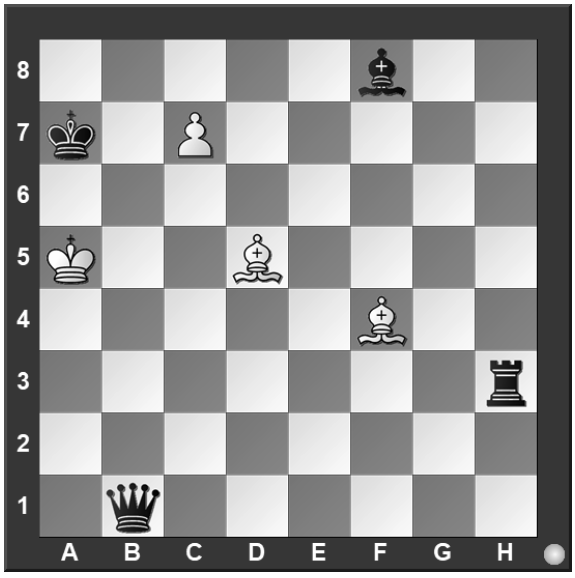
#7. White to move



With the best play, what is the outcome of the game?

a) White wins.
b) Black wins.
c) Draw.
d) It is not possible to tell.

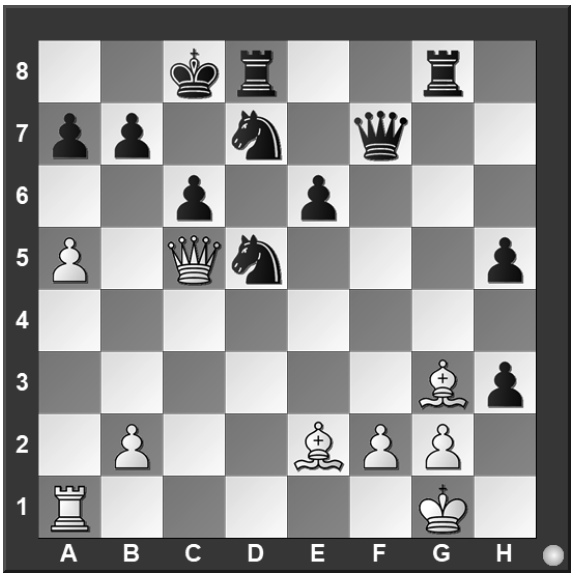
#8. White to move



What piece should White promote to?

a) Queen
b) Rook
c) Bishop
d) Knight

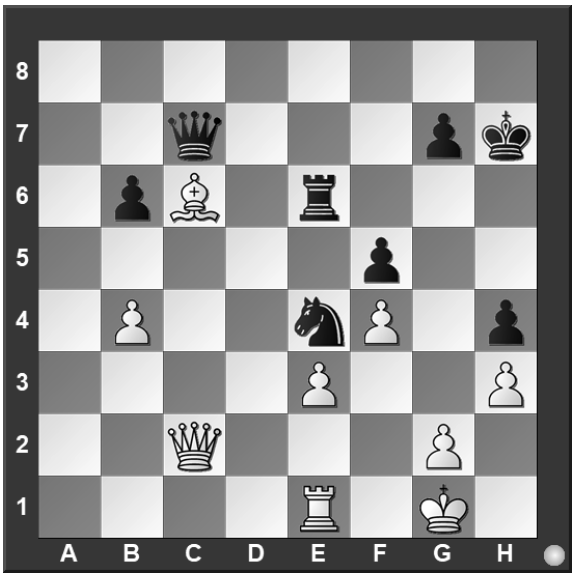
#9. White to move



If White can checkmate Black in two moves, what's the *first* move?

a) ♕×**a7**
b) ♕×**c6**
c) ♕**d6**
d) **a6**

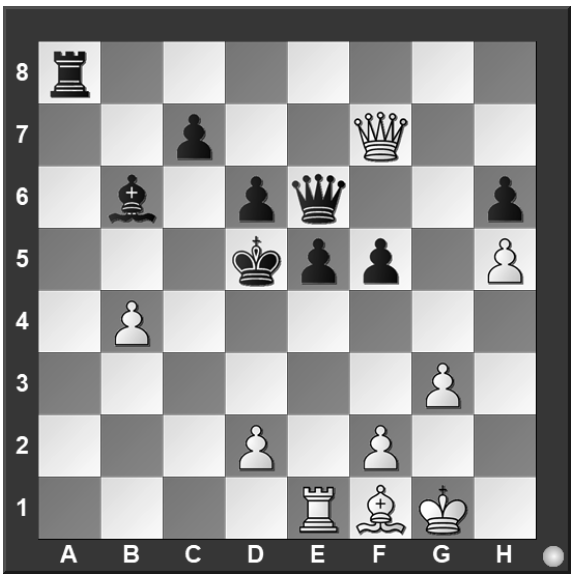
#10. White to move



What is White's best move?

a) ♖**c1**
b) ♘×**e4**
c) ♘**a4**
d) **b5**

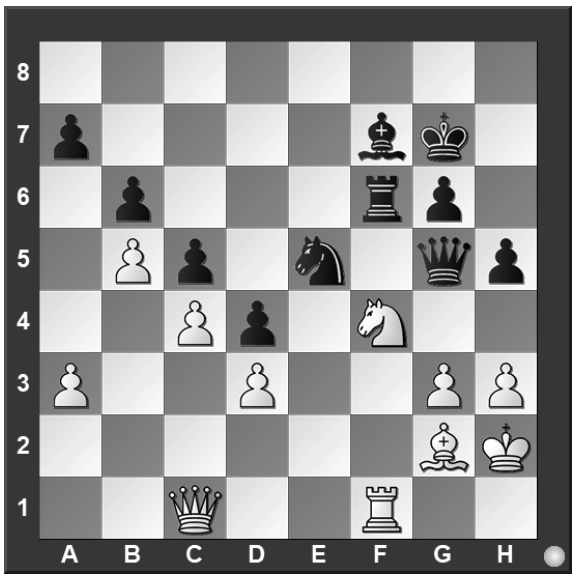
#11. White to move



What is White's best move?

a) ♕×**d6**
b) ♘**g2**
c) ♘**c4**
d) ♖**c1**

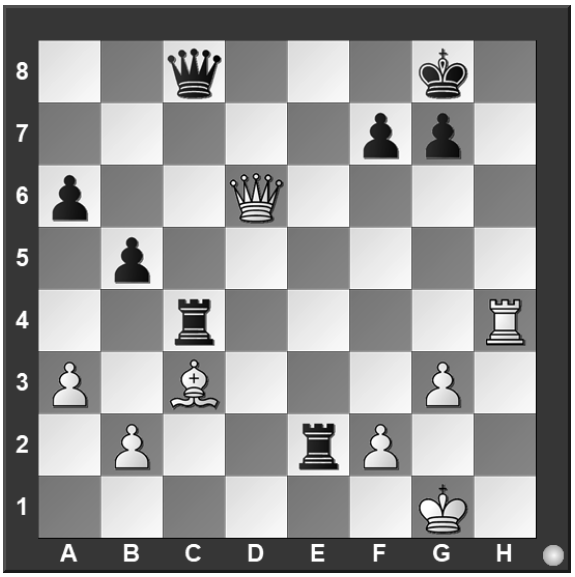
#12. White to move



What is White's best move?

a) ♘**e6**
b) ♘×**h5**
c) ♕**e1**
d) ♘**e4**

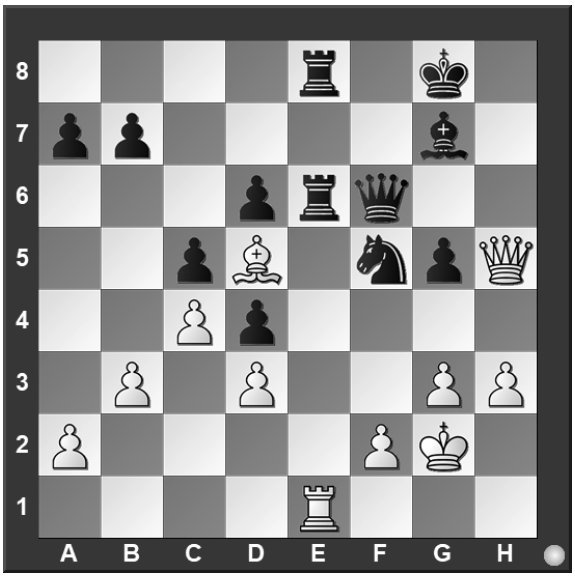
#13. White to move



If White can checkmate Black in three moves, what is the *first* move?

a) ♖×**c4**
b) ♖**h8**
c) ♕**e5**
d) ♗×**g7**

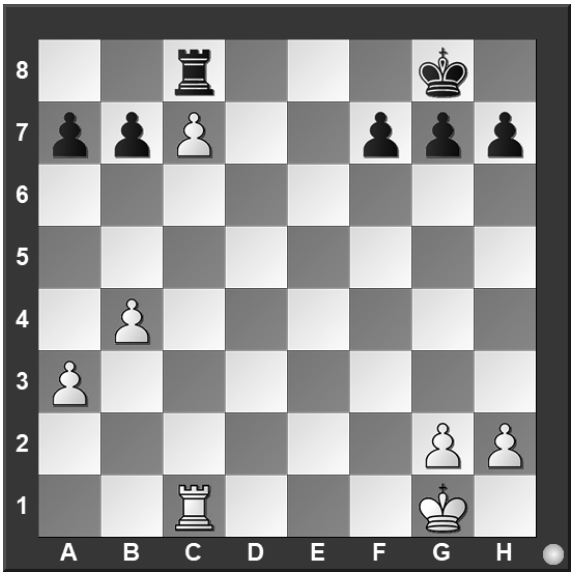
#14. White to move



What is White's best move?

a) ♖×**e6**
b) ♗×**e6**
c) ♕×**e8**
d) **h4**

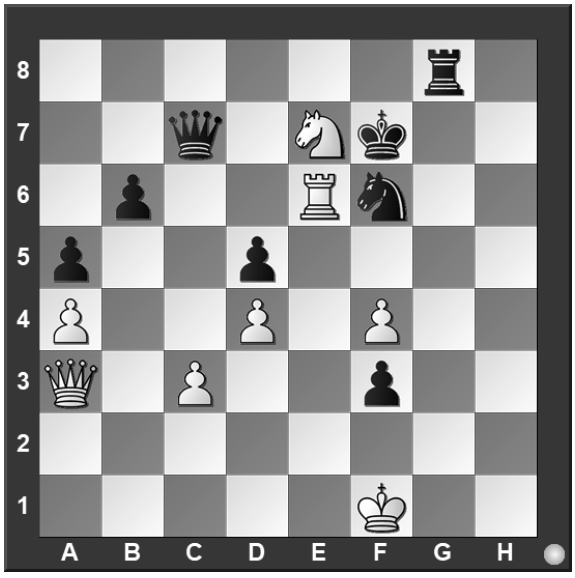
#15. White to move



What is White's best move?

a) ♔**f2**
b) ♖**d1**
c) **b5**
d) **a4**

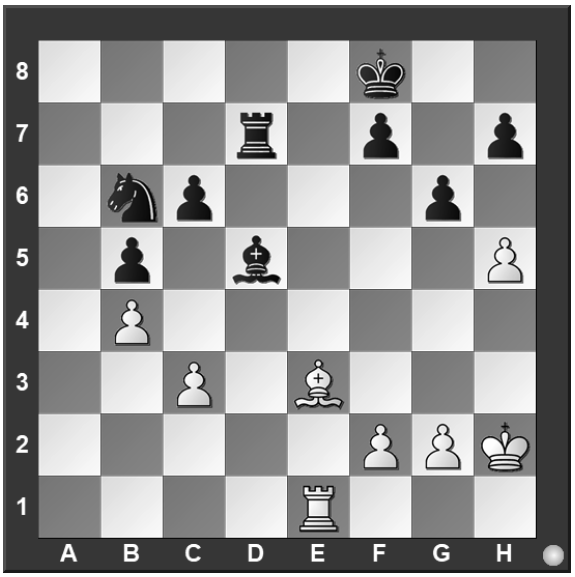
#16. White to move



What is White's best move?

a) ♖×**f6**
b) ♖**c6**
c) ♘×**g8**
d) **f5**

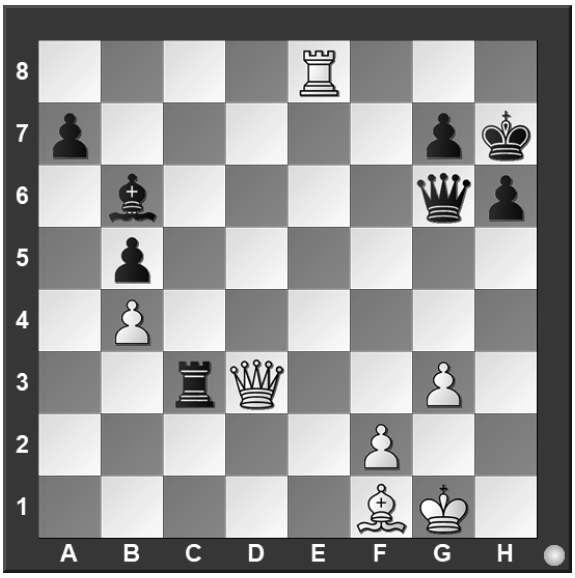
#17. White to move



What is White's best move?

a) ♗×**b6**
b) ♗**h6**
c) ♗**c5**
d) **h**×**g6**

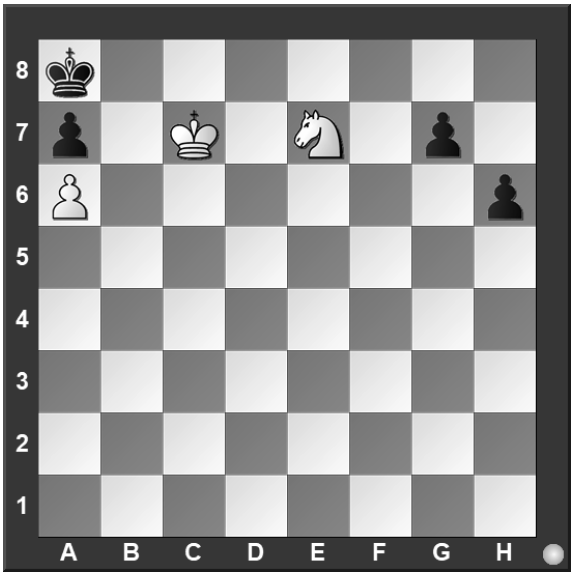
#18. White to move



What is White's best move?

a) ♕×**c3**
b) ♕×**g6**
c) ♕×**b5**
d) ♖**h8**

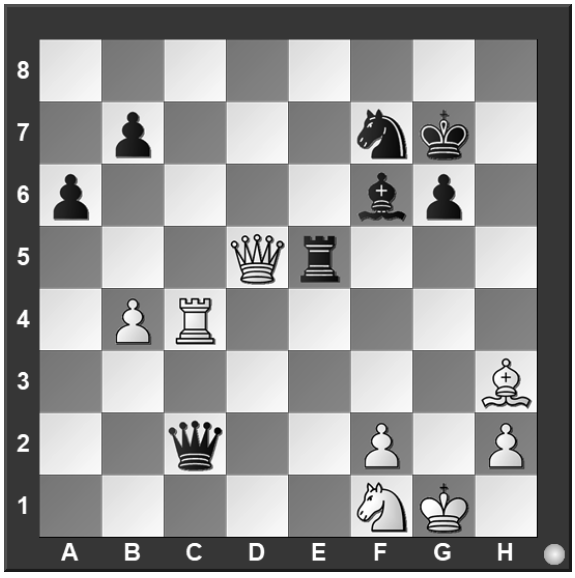
#19. White to move



How many moves does it take to checkmate Black?

a) 1
b) 2
c) 3
d) There is no checkmate

#20. White to move



What piece should White capture?

a) Queen
b) Rook
c) Knight
d) pawn

University Interscholastic League
A+ Chess Puzzle Contest
2020-2021 Spring — Grades 6, 7, & 8

ANSWER KEY

Test

1. B
2. A
3. C
4. B
5. A
6. C
7. A
8. D
9. B
10. B
11. C
12. A
13. B
14. C
15. B
16. A
17. B
18. D
19. C
20. C

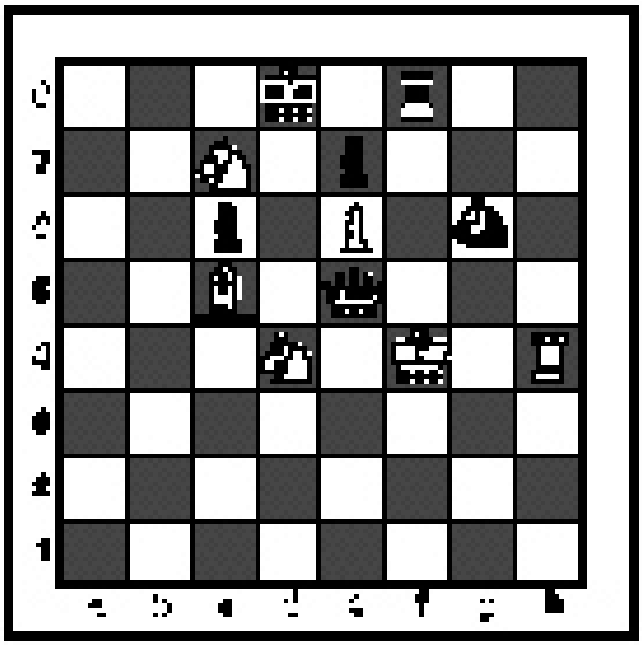
Tiebreaker

1. D
2. C
3. C
4. B
5. C
6. D
7. B
8. A

SPRING DISTRICT 2020-2021

A+ ACADEMICS

University Interscholastic League



Chess Puzzle Solving

TIEBREAKER - ALL GRADES

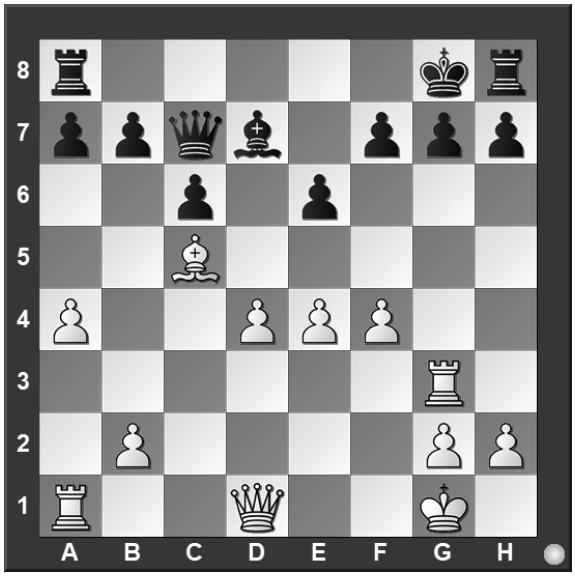
DO NOT OPEN TEST
UNTIL TOLD TO DO SO

#1. White to move

What is White's best move?

a) ♕**d4**
b) ♕**d2**
c) ♕**h3**
d) ♖**h8**

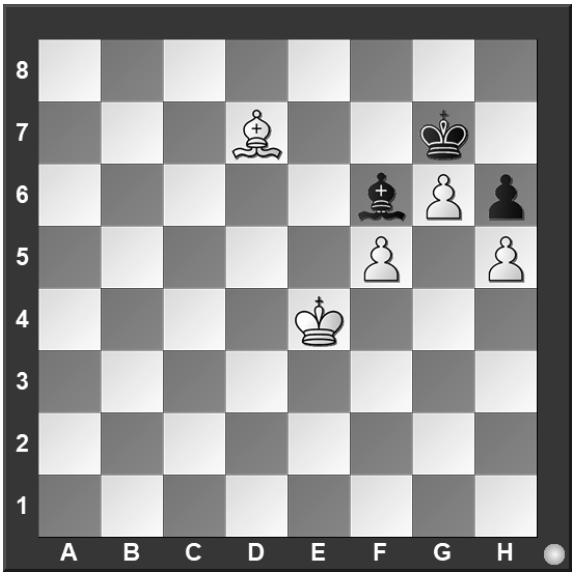
#2. White to move



If White can checkmate Black in three moves, what's the *first* move?

a) ♕**g4**
b) ♕**h5**
c) ♖×**g7**
d) ♖**aa3**

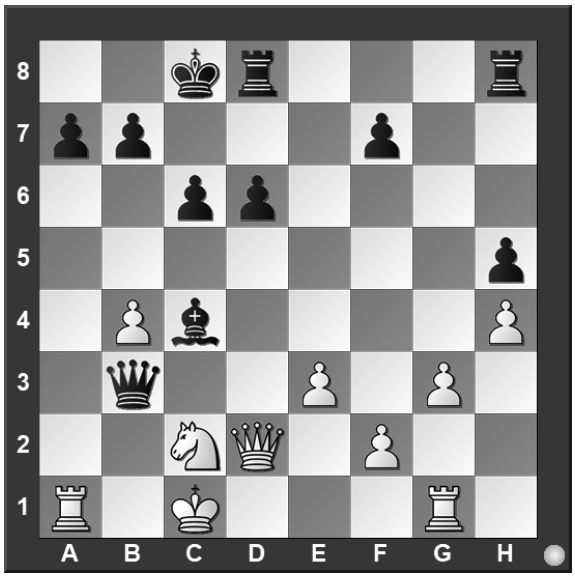
#3. White to move



With the best play, what is the outcome of the game?

a) White wins.
b) Black wins.
c) Draw.
d) It is not possible to tell.

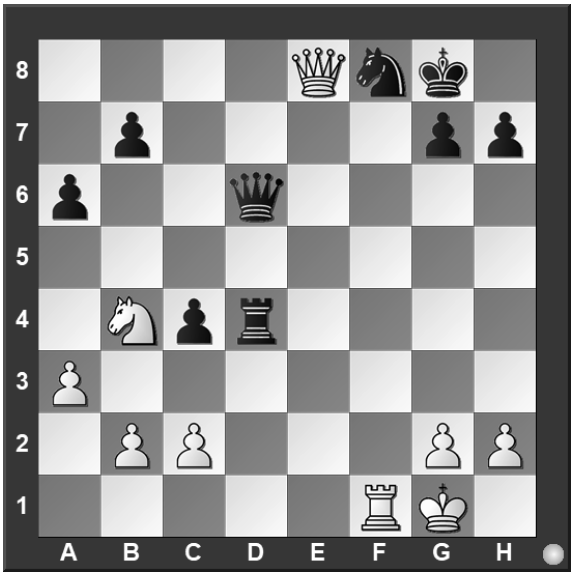
#4. White to move



What is White's best move?

a) ♖×**a7**
b) ♖**a3**
c) ♖**b1**
d) ♘**d4**

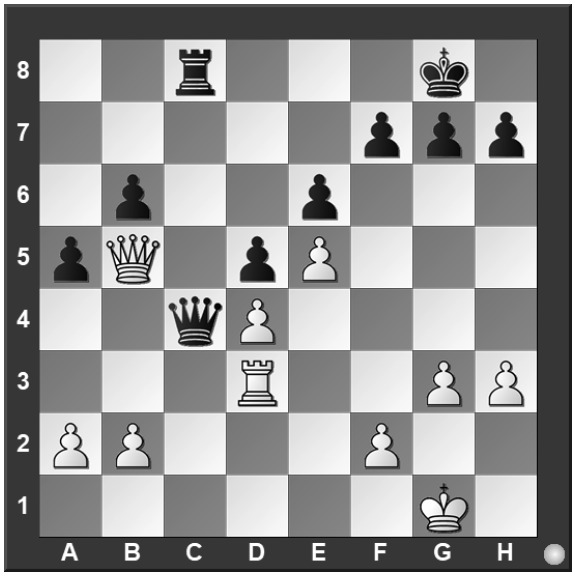
#5. White to move



How many moves does it take to checkmate Black?

a) 1
b) 2
c) 3
d) There is no checkmate

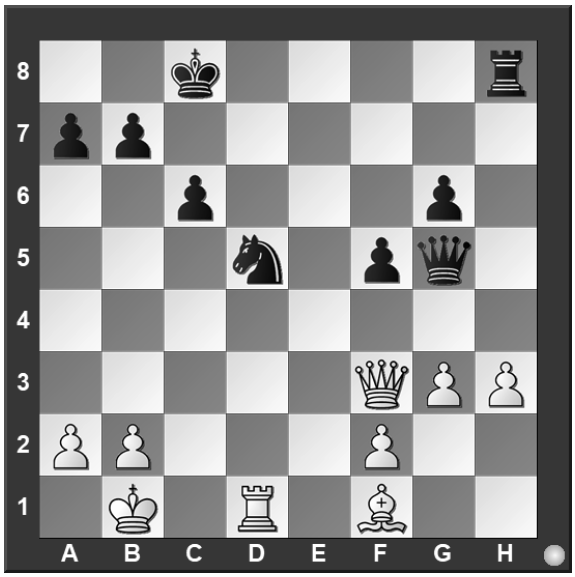
#6. White to move



What is White's best move?

a) ♕**d7**
b) ♕×**c4**
c) ♕**b3**
d) ♖**c3**

#7. White to move



What is White's best move?

a) ♖**c1**
b) ♖×**d5**
c) ♗**c4**
d) **h4**

#8. White to move

What is White's best move?

a) ♕×**h7**
b) ♖**h3**
c) ♘**d5**
d) **f4**

CONTESTANT NUMBER:

FOR GRADER USE ONLY Score Test Below: _____out of 120. Initials_____ _____out of 120. Initials_____ **Papers contending to place:** _____out of 120. Initials_____	**University Interscholastic League** **A+ Dictionary Skills Contest • Answer Sheet**

Write your contestant number in the upper right corner, and circle your grade below.

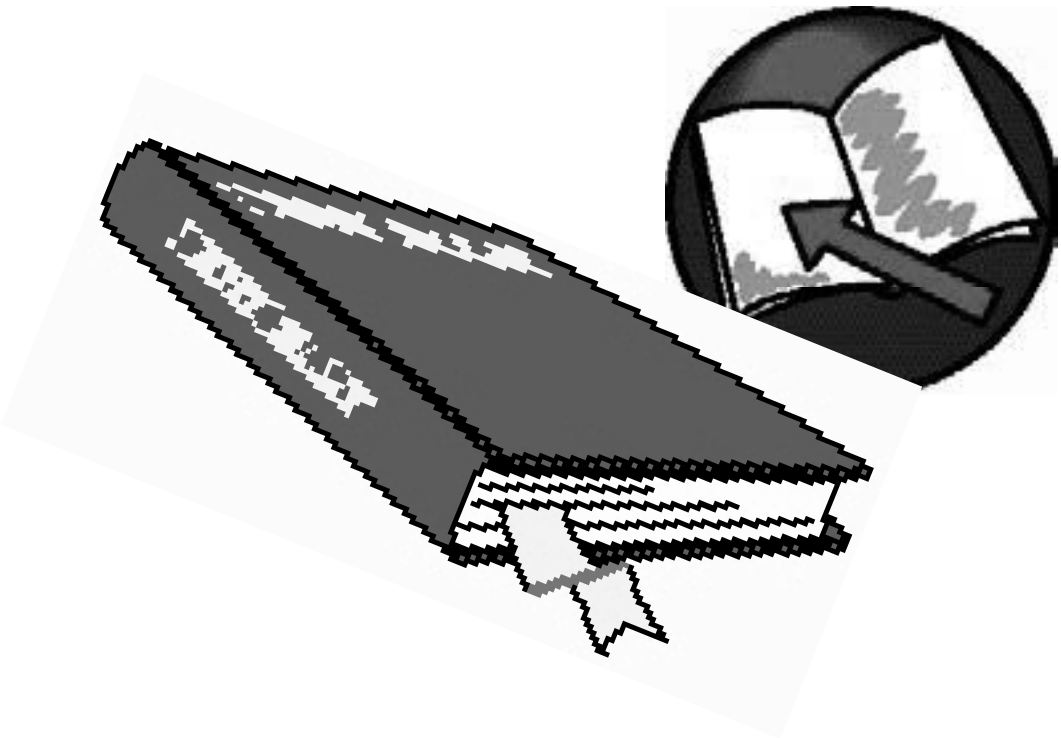
Circle Grade Level: 5 6 7 8

1.	A	B	C	D				21.	A	B	C	D			
2.	A	B	C	D				22.	A	B	C	D			
3.	A	B	C	D				23.	A	B	C	D			
4.	A	B	C	D				24.	A	B	C	D			
5.	A	B	C	D				25.	A	B	C	D			
6.	A	B	C	D				26.	A	B	C	D			
7.	A	B	C	D				27.	A	B	C	D			
8.	A	B	C	D				28.	A	B	C	D			
9.	A	B	C	D				29.	A	B	C	D			
10.	A	B	C	D				30.	A	B	C	D			
11.	A	B	C	D				31.	A	B	C	D			
12.	A	B	C	D				32.	A	B	C	D			
13.	A	B	C	D				33.	A	B	C	D	E	F	G	H
14.	A	B	C	D				34.	A	B	C	D	E	F	G	H
15.	A	B	C	D				35.	A	B	C	D	E	F	G	H
16.	A	B	C	D				36.	A	B	C	D	E	F	G	H
17.	A	B	C	D				37.	A	B	C	D	E	F	G	H
18.	A	B	C	D				38.	A	B	C	D	E	F	G	H
19.	A	B	C	D				39.	A	B	C	D	E	F	G	H
20.	A	B	C	D				40.	A	B	C	D	E	F	G	H

INVITATIONAL 2020-2021

A+ ACADEMICS

University Interscholastic League



Dictionary Skills

grades 7 & 8

DO NOT OPEN TEST
UNTIL TOLD TO DO SO

University Interscholastic League
2020-21 Dictionary Skills Contest
Invitational District Test — Grades 7 & 8

1. What type of fish does a lamprey resemble?
   A. jellyfish
   B. eel
   C. stingray
   D. blowfish

2. What U.S. Government program was created in 1935?
   A. Bureau
   B. Medicaid
   C. Social Security
   D. Food stamps

3. What is the atomic weight for the element mercury?
   A. 95.94
   B. 150.36
   C. 32.07
   D. 200.59

4. Counterintelligence is an activity used by an intelligence service to hide what from their enemies?
   A. truth
   B. hostages
   C. valuable jewelry
   D. medicine

5. How many feet below sea level is the Dead Sea?
   A. 400 ft
   B. 120 ft
   C. 1435 ft
   D. 1312 ft

6. Farina is most likely to be eaten at what time of the day?
   A. dessert
   B. breakfast
   C. lunch
   D. dinner

7. What case led the U.S. Supreme court to establish the Miranda rights?
   A. Miranda v. Arizona
   B. Miranda v. New York
   C. Miranda v. New Mexico
   D. Miranda v. Ohio

8. All of the following vegetables are considered gourds **EXCEPT**?
   A. pumpkin
   B. melon
   C. lemon
   D. cucumber

9. Who was the chief justice of the U.S. Supreme Court between 1836-1864?
   A. Andrew Jackson
   B. George Rogers Clark
   C. Roger Brooke Taney
   D. John Sherman

10. Where are you mostly likely to find a lavaliere hanging?
    A. on a car mirror
    B. on a flagpole
    C. on a wall
    D. on a chain

11. Which of the following is most likely to use hatching in their work?
    A. an artist
    B. a lawyer
    C. a weather man
    D. a dog trainer

12. How many times can a monosaccharide be split into simpler sugars?
    A. three
    B. four
    C. two
    D. none of the above

13. An individual taking a Rorschach test, is asked to tell what they see in and think about various designs of what?
    A. water colors
    B. ink blots
    C. stained glass
    D. floral arrangements

14. What is the name of the mountain that was formerly known as Aoraki mountain?
    A. Carpathian Mountains
    B. Mount Cook
    C. Black Hills Mountains
    D. Apennines Mountain

15. How did Daedalus and his son escape imprisonment?
    A. an underground tunnel
    B. a horse
    C. an airplane
    D. wings

16. How many days after Easter is Ascension Day?
    A. 20
    B. 30
    C. 40
    D. 15

17. Slash pine is an important source of all of the following **EXCEPT**?
    A. lumber
    B. pulpwood
    C. oak
    D. turpentine

18. Silica remains as a skeleton after death for any of a class of minute floating single celled or colonial algae called what?
    A. diatom
    B. thistle
    C. syncline
    D. pholx

19. Which of the following is considered a radial symmetry?
    A. quince
    B. a snail
    C. grapevines
    D. a starfish

20. What does a phylactery contain?
    A. treasure
    B. scripture passages
    C. eggs
    D. maps

21. How many popes were named Boniface?
    A. 10
    B. 5
    C. 12
    D. None of the above

22. What kind of insect is a midge?
    A. a grasshopper
    B. a beetle
    C. a fly
    D. a blattodea

23. A burnoose is derived from the Arabic word meaning what?
    A. hooded cloak
    B. flower pot
    C. firewood
    D. housing

24. Which of the following plants spread by creeping underground stems?
    A. oat
    B. quack grass
    C. sumac
    D. milkweed

25. What does the organization YWHA stand for?
    A. Young Warriors Helping Always
    B. Young Women's Hebrew Association
    C. Youth with Attitude Association
    D. Your Willing Home Assistants

26. What year did Western Samoa become an independent country?
    A. 1944
    B. 1918
    C. 1956
    D. 1962

27. Which of the following is considered to be the world's most popular sport?
    A. football
    B. soccer
    C. baseball
    D. basketball

28. The certification mark NC-17 certifies that no under the age of 17 can be admitted to what?
    A. watch the motion picture
    B. serve in the military
    C. drive an 18-wheeler
    D. own cattle

29. What type of vote is a straw vote?
    A. a first-time vote
    B. a wrong vote
    C. an unofficial vote
    D. the last vote

30. What musical instrument does a flageolet resemble?
    A. cello
    B. saxophone
    C. flute
    D. None of the above

31. All of the following are considered to part of the Great Lakes **EXCEPT**?
    A. Lake Huron
    B. Lake Michigan
    C. Lake Superior
    D. Lake Okeechobee

32. Carnage refers to the great destruction of what?
    A. buildings
    B. life
    C. mountains
    D. roads

Match each of the following words to its correct meaning:

_____ 33. koruna	A. from the beginning
_____ 34. da capo	B. a person who peddles fake medicines by trickery
_____ 35. spinet	C. a long tiring walk
_____ 36. blench	D. to rub over with oil or an oily substance
_____ 37. trudge	E. the basic unit of money in Czech
_____ 38. anoint	F. to shrink back out of fear
_____ 39. mountebank	G. a person who live away from others
_____ 40. recluse	H. a low piano built with strings running up and down

University Interscholastic League
2020-21 Dictionary Skills Contest
Invitational Test — Grades 7 & 8

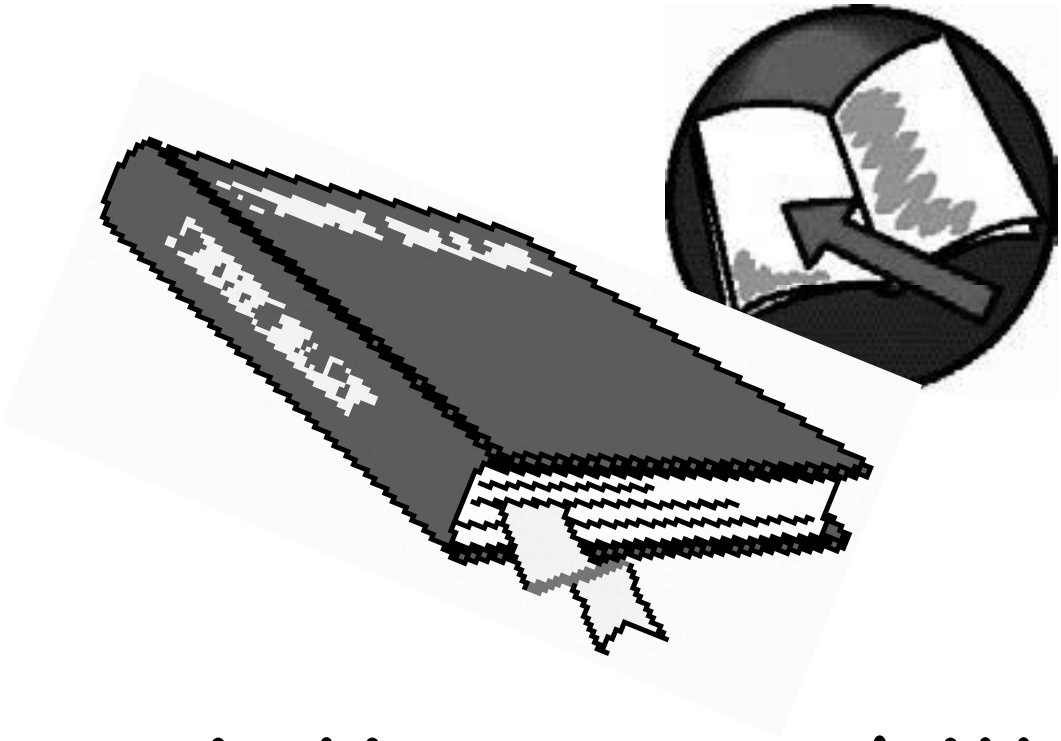
Answer Key

1. B
2. C
3. D
4. A
5. D
6. B
7. A
8. C
9. C
10. D
11. A
12. D
13. B
14. B
15. D
16. C
17. C
18. A
19. D
20. B
21. D
22. C
23. A
24. B
25. B
26. D
27. B
28. A
29. C
30. C
31. D
32. B
33. E
34. A
35. H
36. F
37. C
38. D
39. B
40. G

FALL/WINTER DISTRICT 2020-2021

A+ ACADEMICS

University Interscholastic League



Dictionary Skills

grades 7 & 8

DO NOT OPEN TEST
UNTIL TOLD TO DO SO

University Interscholastic League
2020-21 Dictionary Skills Contest
Fall/Winter District Test — Grades 7 & 8

1. Dendrology is the study of what?
   A. mountains
   B. trees
   C. clouds
   D. organs

2. The electronic display screen LCD stands for what?
   A. light carrying display
   B. lifting catch display
   C. liquid crystal display
   D. light containing display

3. What year was the word robot introduced to English?
   A. 1955
   B. 1912
   C. 1922
   D. 1923

4. What is a musical composition written without following a particular style?
   A. a fantasia
   B. a falsetto
   C. a syncopation
   D. key signature

5. According to the history of the word Khaki, the name originated from what language?
   A. Spanish
   B. Dutch
   C. Hindi
   D. Italian

6. What is another name for a stress mark?
   A. bold mark
   B. switch mark
   C. accent mark
   D. fine mark

7. What is the capital of Cape Verde?
   A. Oxnard
   B. Praia
   C. Bern
   D. Bogota

8. What is the name given to a party in a legal proceeding whose true name is to be unknown?
   A. Richard Roe
   B. Cody Blue
   C. Richard Wagner
   D. John Smith

9. What object is used in the game called cat's cradle?
   A. a box
   B. a light
   C. a basket
   D. a string

10. What is administered in probate court?
    A. school districts
    B. town laws
    C. estates
    D. child custody

11. What was Pecos Bill known for?
    A. his magic tricks
    B. his riding style
    C. his teeth
    D. his feats

12. What month do people in Canada celebrate Thanksgiving Day?
    A. January
    B. October
    C. November
    D. December

13. According to Greek mythology, who killed the hydra?
    A. Perseus
    B. Hercules
    C. Jason
    D. Orpheus

14. What type of reptile is a racerunner?
    A. a lizard
    B. a snake
    C. a chameleon
    D. a gecko

15. What does a sycophant do to another in order to get ahead?
    A. blackmails
    B. harms
    C. flatters
    D. bribes

16. Which of the following is an aerosol?
    A. fog
    B. ashes
    C. rubber
    D. dust

17. What do remora have on the top of their heads?
    A. a sharp scale
    B. a suction disk
    C. eyes
    D. black spots

18. What year did impressionism begin in France?
    A. 1805
    B. 1902
    C. 1899
    D. 1870

19. How many accented syllables are in a trochee?
    A. three
    B. one
    C. four
    D. two

20. All of the following are track and field events **EXCEPT**?
    A. triple jump
    B. discus
    C. javelin
    D. disbar

21. What is the age of someone considered middle aged?
    A. 40
    B. 65
    C. 59
    D. 44

22. According to the history of the Jeep, what comic strip inspired the development of the vehicle and its name?
    A. Popeye
    B. Garfield
    C. Marvel
    D. DC

23. In Greek mythology, what caused the Trojan War?
    A. money
    B. Helen of Troy's abduction
    C. land
    D. the killing of Menelaus son

24. Where is a trade route located?
    A. underground
    B. a highway
    C. sea
    D. mountain tops

25. Set theory is a branch of what subject?
    A. art
    B. science
    C. history
    D. mathematics

26. All of the following may be symptoms of premenstrual syndrome **EXCEPT**?
    A. insomnia
    B. fatigue
    C. headache
    D. fever

27. A horned pout is a common bullhead in what part of the U.S.?
    A. eastern
    B. western
    C. southern
    D. northern

28. Someone known to be infamous has what kind of a reputation?
    A. kind
    B. evil
    C. secretive
    D. persuasive

29. Which of the following is an example of invoking?
    A. breaking the law
    B. taking back a gift
    C. prayer
    D. a career change

30. What does a usurer lend?
    A. money
    B. advice
    C. manual labor
    D. transportation

31. Cathay is an old name for what country?
    A. Australia
    B. China
    C. Colombia
    D. Finland

32. If someone is delousing, what are they removing?

A. carpet
B. mold
C. sugar
D. lice

Match each of the following words to its correct meaning:

_____ 33. raft
A. having a blissful appearance

_____ 34. frail
B. to have an eager or continual desire

_____ 35. beatific
C. expressed without words or speech

_____ 36. tacit
D. a very poor person

_____ 37. wild carrot
E. easily led into evil

_____ 38. pauper
F. a single gem set alone

_____ 39. hanker
G. a large amount or number

_____ 40. solitaire
H. Queen Anne's Lace

University Interscholastic League
2020-21 Dictionary Skills Contest
Fall/Winter District — Grades 7 & 8

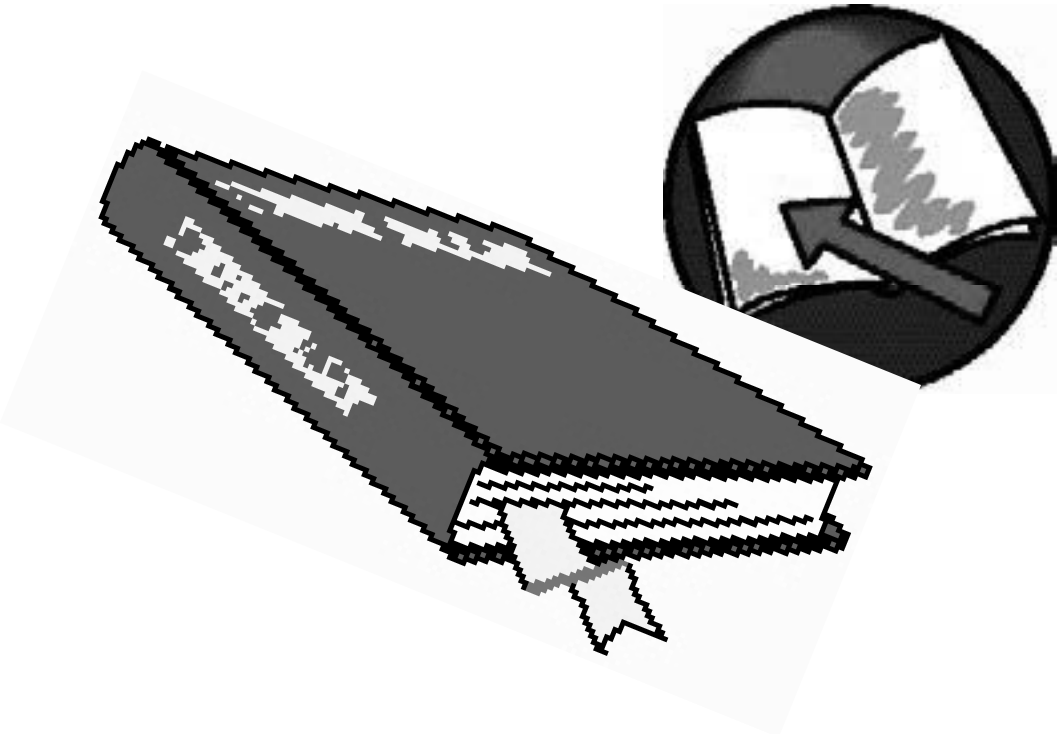
Answer Key

1. B
2. C
3. D
4. A
5. C
6. C
7. B
8. A
9. D
10. C
11. D
12. B
13. B
14. A
15. C
16. A
17. B
18. D
19. B
20. D
21. C
22. A
23. B
24. C
25. D
26. D
27. A
28. B
29. C
30. A
31. B
32. D
33. G
34. E
35. A
36. C
37. H
38. D
39. B
40. F

SPRING DISTRICT 2020-2021

A+ ACADEMICS

University Interscholastic League



Dictionary Skills

grades 7 & 8

DO NOT OPEN TEST
UNTIL TOLD TO DO SO

University Interscholastic League
2020-21 Dictionary Skills Contest
Spring District — Grades 7 & 8

1. Which of the following could be used to describe a kangaroo court?
   A. overloaded
   B. understaffed
   C. unfair
   D. quick

2. What is the theory that states if one nation becomes Communist-controlled the neighboring nations will also become Communist-controlled?
   A. big bang theory
   B. domino theory
   C. evolution
   D. quantum theory

3. Where would you find a folio?
   A. a library
   B. a pantry
   C. a billboard
   D. a restroom

4. What is something that a privy does not have?
   A. Air conditioning
   B. lights
   C. plumbing
   D. windows

5. All of the following are U.S. capitals **EXCEPT**?
   A. Tallahassee
   B. Dover
   C. Hartford
   D. Manama

6. What year did the man that wisterias are named after die?
   A. 1918
   B. 1818
   C. 1841
   D. 1761

7. What is the Roman numeral for forty?
   A. XL
   B. VIII
   C. XC
   D. XXII

8. What area of the retina contains only cones?
   A. cornea
   B. fovea
   C. iris
   D. optic nerve

9. Passover is a Jewish holiday that honors the freeing of Hebrews slaves from what country?
   A. Bolivia
   B. Israel
   C. Egypt
   D. Fiji

10. Someone that has a pockmark may have suffered from what?
    A. cancer
    B. menopause
    C. hair loss
    D. smallpox

11. How many years was Boris Nikolayevich Yeltsin president of Russia?
    A. 4 years
    B. 5 years
    C. 9 years
    D. 6 years

12. Which of the following foods is also called bean curd?
    A. tofu
    B. sponge cake
    C. goulash
    D.

13. Practice, usage and custom are all synonyms for what word?
    A. weak
    B. habit
    C. multitude
    D. lasting

14. According to the history of museum, how many sister goddesses did the ancient Greeks worship?
    A. six
    B. nine
    C. two
    D. four

15. The Mariana Trench is considered to be the what in the world?
    A. most dangerous
    B. deepest
    C. darkest
    D. coldest

16. What does MRI stand for?
    A. mirroring right imaging
    B. minor rear intention
    C. mission resource ignition
    D. magnetic resonance imaging

17. A hotline is typically used for what type of service calls?
    A. pest control
    B. lawncare
    C. direct emergencies
    D. housekeeping

18. During what century was a doublet chiefly worn?
    A. 12^{th}
    B. 14^{th}
    C. 16^{th}
    D. 15^{th}

19. What part of the body is the enzyme pepsin given off?
    A. the stomach
    B. the brain
    C. the lungs
    D. the pancreas

20. What is listed on a pedigree?
    A. ingredients
    B. line of ancestors
    C. temperatures
    D. names of state capitals

21. Sickle-cell anemia occurs mostly in people of the following ancestry **EXCEPT**?
    A. Southwest Asian
    B. African
    C. Mediterranean
    D. Mexican

22. A mezzo-soprano has a voice between that of a soprano and what?
    A. treble
    B. bass
    C. contralto
    D. tenor

23. How many degrees south of the equator is the Tropic of Capricorn?
    A. 22
    B. 21 ½
    C. 23 ½
    D. 25

24. What type of flavor does sherry wine have?
    A. nutty
    B. cherry
    C. honey
    D. citrus

25. Which of the following rivers are **NOT** under 200 miles long?
    A. James River
    B. Arno river
    C. Detroit river
    D. Neva river

26. What date is Michaelmas celebrated?
    A. October 10th
    B. September 29th
    C. December 5th
    D. April 2nd

27. According to the history of caterpillar, what animal did a fuzzy caterpillar remind some people of in France?
    A. snakes
    B. lions
    C. little dogs
    D. cats

28. In Fahrenheit, how many degrees above zero does water have to reach to boil under standard atmospheric pressure?
    A. 202 degrees
    B. 107 degrees
    C. 32 degrees
    D. 212 degrees

29. What does a truant officer investigate?
    A. murders
    B. theft
    C. fraud
    D. absences

30. Which of the following items is used for medical treatment?
    A. a poultice
    B. a pommel
    C. an easel
    D. a stylus

31. Something described as being run-of-the-mill would also be describes as what?
    A. scary
    B. genius
    C. average
    D. extraordinary

32. What was the name of Esau's twin brother?
    A. Christopher
    B. Jacob
    C. Michael
    D. Stephen

Match each of the following words to its correct meaning:

_____ 33. duck soup	A. to get around the side of
_____ 34. trice	B. a strong current of air
_____ 35. outflank	C. a brief space of time
_____ 36. spar	D. small, rural and unimportant
_____ 37. gale	E. having an irritable disposition
_____ 38. quizzical	F. a stout pole
_____ 39. jerkwater	G. something easy to do
_____ 40. ornery	H. teasing in a good-natured way

University Interscholastic League
2020-21 Dictionary Skills Contest
Spring Test — Grades 7 & 8

Answer Key

1. C
2. B
3. A
4. C
5. D
6. B
7. A
8. B
9. C
10. D
11. C
12. A
13. B
14. B
15. B
16. D
17. C
18. C
19. A
20. B
21. D
22. C
23. C
24. A
25. A
26. B
27. C
28. D
29. D
30. A
31. C
32. B
33. G
34. C
35. A
36. F
37. B
38. H
39. D
40. E

Editorial Writing

Evaluation Sheet

_____
contestant #

In order to make this a complete learning experience, judges are asked to complete the evaluation sheet for students.

	FAIR	GOOD	EXCELLENT
The situation or problem is explained in the first two or three paragraphs.	❑	❑	❑
The writer takes an obvious stance in the first few paragraphs.	❑	❑	❑
The writer supports the stance through specific examples.	❑	❑	❑
The writer presents a logical solution or conclusion.	❑	❑	❑

What were the strong points of the editorial?

What were the weak points of the editorial?

What suggestions do you have for improvement?

Judge's Signature _____

Editorial Writing

A+ Invitational • 2020-2021

You are a reporter for the Leaguetown *Press*, the student newspaper of Leaguetown Middle School. From the given information, write an editorial as you would for the middle school newspaper. Remember that as an editorial writer you should support or oppose policy or action; you should not sermonize.

You have 45 minutes.

Do not write your name or the name of your school on this sheet or entry. Put your number in the upper right corner of each page of your entry.

STATEMENT OF SITUATION

Leaguetown Middle School is located in Central Texas and has an enrollment of 1,500 students in grades 6, 7 and 8.

Each year, the Spanish Club hosts a community-wide celebration of Dia de los Muertos, a traditional Mexican holiday, on the Saturday preceding Nov. 1. Over the past 10 years, the event has grown to include participation from other organizations within the school. Last week, due to COVID-19 concerns, Principal Jason Stubbs made the decision that the event would be canceled.

"I know the students have been working for several months on plans for the event, but my priority has to be the health of our students and our community," Stubbs said. "The items the clubs have purchased and created can be used another year or for another event. It would be reckless to allow the event to go on."

Planning for the celebration begins in the spring each year. The event features a parade complete with costumed dancers, colorful floats and lively music. Art students have been working on an art exhibit featuring traditional sugar skulls, and the band has been rehearsing a Mariachi performance.

"The amount of work that has already gone into our celebration is incredible," Spanish Club adviser Maria Salazar said. "The event was cancelled without even discussing the possibility of safety measures. We have already spent money on masks to hand out at the entry to the event, as well as hand sanitation stations, and thermometers to monitor those coming in to make sure no one has a fever."

One of the most popular parts of the celebration is the food. Some of the best Mexican restaurants and food trucks from around the county sell tamales, pan de muerto, aguas frescas and more. The vendors donate a portion of their profits to the Spanish Club, making this one of the most profitable fundraisers for the group each year. The group depends on these funds to help pay for its annual trip to Mexico City.

"It is absolutely beyond disappointing that Mr. Stubbs would make this decision without consulting anyone else," the Parent-Teacher Organization president Marsha Collins said. "He has no right to disregard all of the money and hard work that has been put into planning this event so far. Mr. Stubbs hasn't cancelled any football games, but he insists on putting the brakes on this festival."

The PTO has asked the school board to reverse the principal's decision and allow the students to move forward with the celebration. The school board will vote on the proposal at its regular meeting this Wednesday. You are writing for the issue of the Press to be distributed on the Tuesday prior to the meeting.

STANCES

Supporting Stubbs

The school has to prioritize students' health. Having a large community gathering will put students at risk. The Spanish Club is free to find a fundraiser that doesn't involve large gatherings.

Opposing Stubbs

The Spanish Club is planning to take precautions that will make the event safer. The Spanish Club needs money from the event. Some large events, like football games, are already happening. Some supplies for the event have already been purchased. If Stubbs had wanted to cancel the event, he should have made that known earlier.

UIL Editorial Writing Contest • A+ Invitational • 2020-2021

(Distribute this sheet to judges prior to judging.)

JUDGING INSTRUCTIONS

In each contestant's editorial, please look for clarity of thought, and if the writer came to a clear conclusion. Remember that many of these writers have not been trained in proper editorial writing. Therefore key considerations should be that they have made a statement of the situation and formed a stance. They should back that stance with examples. Those examples do not have to come from the data sheet. The contestant then should come to a specific solution or recommendation.

Remember that for purposes of the contest these students go to Leaguetown Middle School. Contestants should not have to specify Leaguetown Middle School, because everyone reading the school paper knows where they go to school. Also, when they refer to the school board they do not have to say "Leaguetown School Board." Again, they know in what city they live.

Judging criteria has been developed to help you score the papers. The criteria are intended to help you evaluate the writing, not as a control over your background in editorial writing or the writing process.

SAMPLE EDITORIAL

After the annual Dia de los Muertos festival hosted by the Spanish Club was canceled last week by Principal Jason Stubbs, the Parent-Teacher Organization asked the school board to reverse his decision, insisting that the plans in place will keep festival-goers safe from COVID-19 dangers. The board will vote on the issue at its meeting Wednesday night.

Stubbs was wrong to cancel the annual celebration. The school board should reverse his decision and allow the festival to continue.

While Stubbs cited safety concerns due to COVID-19, the Spanish Club and other organizations involved in planning the event have been proactive in considering the safety of those attending and working at the festival. Thermometers have been ordered to allow for temperatures to be taken upon entry. Masks featuring sugar skull designs will be handed out at the gate, and hand sanitizer stations will be set up throughout the festival area. Festival goers will be safe.

While the festival is not designed primarily as a fundraiser, money raised through the event does help pay for the Spanish Club's annual trip to Mexico City — a trip that allows students to immerse themselves in Mexican culture and learn more about the history and culture. Not only will canceling the event wipe out that money, but supplies that have already been purchased will be wasted. The negative consequences of canceling the event far outweigh the risks.

Stubbs says he is worried about the health of the students and others who would participate in the festival. However, the football games each week draw large crowds and do not implement the same safety measures that the students have planned for the festival. Football games are more likely to spread COVID-19 than attendance at the Dia de los Muertos celebration.

Canceling the annual event is the wrong idea. Our students are safe and should be allowed to celebrate.

Editorial Writing

A+ Fall/Winter • 2020-2021

You are a reporter for the Leaguetown *Press*, the student newspaper of Leaguetown Middle School. From the given information, write an editorial as you would for the middle school newspaper. Remember that as an editorial writer you should support or oppose policy or action; you should not sermonize.

You have 45 minutes.

Do not write your name or the name of your school on this sheet or entry. Put your number in the upper right corner of each page of your entry.

STATEMENT OF SITUATION

Leaguetown Middle School is located in West Texas and has an enrollment of 1,000 students in grades 6, 7 and 8.

Since 2014, the school has provided laptops in classroom sets for English, math, science and history classes – each teacher has enough laptops for their students, and at the end of each class period, the laptops remain with the teacher. Teachers in classes without laptops can reserve days in the computer lab for their class on a first-come, first-served basis.

At the start of the school year, the school gave students the choice between studying at school or at home. Students who chose to study at home were required to provide their own computer equipment. More than 200 students elected for distance learning.

In a parent survey conducted by the district last Wednesday, 14% of parents whose students are studying in person said that their decision to send their kids to school was shaped "at least in part by their access to necessary computer equipment." In the survey, 21% of parents of at-home learners said their student has had "difficulty participating in online classes due to technology issues" in the last month.

"My family has an old desktop computer that we all share, and it's very slow," seventh grader Alisha Kearns said. "Some days, I'm not able to connect to class until it's almost halfway over. Other days I can't connect at all."

Yesterday, Superintendent Nina Perez announced a plan to purchase individual student laptops. If the school board approves Perez's plan, each student (including both students who are studying at home and students attending school in-person) would check out a laptop at the beginning of the spring semester and return it at the end of the school year. To fund the new laptops, $175,000 would be cut from this year's budget of the school's department of fine arts.

"We need laptops in hands, fast," Perez said. "Students who choose to learn at home are falling behind. A year of missed knowledge would be almost impossible to correct. Even the learning they've missed already will create a difficult gap. And it's hurting our poorest, most vulnerable students the worst. I'm not happy about taking money from our fine arts department, but in difficult times our school has to prioritize."

The fine arts budget is currently set at $250,000 per year.

"This is unacceptable," dance teacher Linda Amorous said. "We're already working on a shoestring. I understand that this situation is unprecedented and difficult decisions have to be made, but there has to be another way."

The school board will vote on Perez's proposal at its regular meeting this Wednesday. You are writing for the issue of the Press to be distributed on the Tuesday prior to the meeting.

STANCES

Supporting

Computer access is very important, especially for students learning at home. Students shouldn't have to choose between protecting their health and learning. Right now, at-home learners are falling behind because of inconsistent computer access; the school should prioritize their learning. Even for students learning in-person, laptops would be beneficial for non-core classes that currently have to reserve time in the computer lab. The department of fine arts can make do with reduced funding for the rest of the year.

Opposing

Students who chose to learn at home volunteered to use their own equipment. If they have that much difficulty with online classes, they shouldn't have chosen to take them. The department of fine arts shouldn't suffer for something that isn't its fault.

UIL Editorial Writing Contest • A+ Fall/Winter • 2020-2021

(Distribute this sheet to judges prior to judging.)

JUDGING INSTRUCTIONS

In each contestant's editorial, please look for clarity of thought, and if the writer came to a clear conclusion. Remember that many of these writers have not been trained in proper editorial writing. Therefore key considerations should be that they have made a statement of the situation and formed a stance. They should back that stance with examples. Those examples do not have to come from the data sheet. The contestant then should come to a specific solution or recommendation.

Remember that for purposes of the contest these students go to Leaguetown Middle School. Contestants should not have to specify Leaguetown Middle School, because everyone reading the school paper knows where they go to school. Also, when they refer to the school board they do not have to say "Leaguetown School Board." Again, they know in what city they live.

Judging criteria has been developed to help you score the papers. The criteria are intended to help you evaluate the writing, not as a control over your background in editorial writing or the writing process.

SAMPLE EDITORIAL

The school board will vote Wednesday on a proposal by superintendent Nina Perez to provide laptops for each student. If approved, the laptops would be funded by cutting $175,000 from the budget of the department of fine arts.

The school board should approve the proposal to ensure computer access.

Students who want to learn from home shouldn't have to choose between their health and their education. Last week's parent survey indicated that 14% of parents whose students are studying in person said that their decision to send their kids to school was shaped "at least in part by their access to necessary computer equipment." This is unacceptable.

Lack of computer access means that at-home learners are falling behind. In the survey, 21% of parents of at-home learners said their student has had "difficulty participating in online classes due to technology issues" in the last month. When students aren't able to consistently access online classes, they miss out on important learning.

Even for students who are still learning in-person, laptops will be beneficial. Currently, non-core classes have to compete for time in the computer lab. Laptops can be used in any class at any time.

Those opposed to the proposal say that the department of fine arts shouldn't be punished for something that isn't its fault; however, the school should do what benefits the most students. Not every student takes classes in the department of fine arts, but every student would benefit from computer access.

Access to computers and, by extension, to online classes should be an absolute priority for the school. The school board should approve Perez's proposal to ensure computer access.

Editorial Writing

A+ Spring • 2020-2021

You are a reporter for the Leaguetown Press, the student newspaper of Leaguetown Middle School. From the given information, write an editorial as you would for the middle school newspaper. Remember that as an editorial writer you should support or oppose policy or action; you should not sermonize.

You have 45 minutes.

Do not write your name or the name of your school on this sheet or entry. Put your number in the upper right corner of each page of your entry.

STATEMENT OF SITUATION

Leaguetown Middle School is located in Central Texas and has an enrollment of 445 students in grades 6, 7 and 8. Last Wednesday, teachers learned that a large group of students planned to hold a 30-minute walk-out to demand stronger safety measures in the school. The students planned the protest after a student bragged about bringing a weapon to school in his backpack last month, and the school made no changes in safety protocols.

Teachers reported the planned protest to Principal Emma Lemming, who immediately called a school assembly and announced that if the students walked out, the Winter Prom would be canceled. Following the announcement, the student organizers canceled the protest.

"We simply cannot have students taking it upon themselves to walk out of school in some sort of attempt to change how we run things around here," Lemming said. "We are responsible for their safety as well as their education, and when they rebel in this way, it is unacceptable. I am thankful to the teachers who reported the situation. We had just enough time to put a stop to the protest."

The students who planned to protest are angry that Lemmings threatened to cancel the Winter Prom, a school tradition. The students and their parents have asked the superintendent to allow them to reschedule the protest without repercussions.

"It's so upsetting that we weren't allowed to express ourselves," Student Council president Lauren Hellman said. "All we wanted to do was let the school know that students are concerned. We're scared. The administration hushed up the details about what happened last month and aren't doing anything new to ensure our safety. We just want to be safe when we come to school. But they don't want to listen to us."

Superintendent Mike Jameson, who has not made his decision yet, scheduled a meeting Thursday with Student Council officers and the students who organized the original protest.

You are writing for the issue of the Press to be distributed on Tuesday, two days before the meeting.

STANCES

Supporting the students

Students are trying to exercise their First Amendment rights. They are justified in expecting the school to improve safety after last month's incident. Students are the ones at risk if the school isn't safe. Their voices need to be heard. Plus, protesting is a good lesson in civic engagement and encourages critical thinking.

Opposing the students

If the students want to protest, they should do it outside of the school day. Teachers should not have their classes disrupted because students do not agree with the decisions of school administration. Students have no right to disrupt learning. If students want changes, they should schedule a meeting with the principal to discuss their concerns.

UIL Editorial Writing Contest • A+ Spring • 2020-2021

(Distribute this sheet to judges prior to judging.)

JUDGING INSTRUCTIONS

In each contestant's editorial, please look for clarity of thought, and if the writer came to a clear conclusion. Remember that many of these writers have not been trained in proper editorial writing. Therefore key considerations should be that they have made a statement of the situation and formed a stance. They should back that stance with examples. Those examples do not have to come from the data sheet. The contestant then should come to a specific solution or recommendation.

Remember that for purposes of the contest these students go to Leaguetown Middle School. Contestants should not have to specify Leaguetown Middle School, because everyone reading the school paper knows where they go to school. Also, when they refer to the school board they do not have to say "Leaguetown School Board." Again, they know in what city they live.

Judging criteria has been developed to help you score the papers. The criteria are intended to help you evaluate the writing, not as a control over your background in editorial writing or the writing process.

SAMPLE EDITORIAL

Because Principal Emma Lemming threatened to cancel the Winter Prom if students walked out of school to demand stronger safety measures, the organizers canceled the protest. On Thursday, the organizers and Student Council officers will meet with Superintendent Mike Jameson to discuss a possible rescheduled protest without penalty.

Jameson should allow students to hold the walkout without penalty because students deserve to have their voices heard regarding safety policies that affect them.

Students' concerns about safety are legitimate. The original plan for the protest came after an incident last month in which a student bragged about bringing a gun in his backpack at school. If students feel unsafe, they should be allowed to advocate for stronger safety measures.

The students are the ones at risk from lax safety measures. They are afraid and want their voices heard. A walkout is effective because it can't be ignored. School administrators would be forced to take students' concerns seriously.

Plus, organizing a protest is a good civic lesson for students and involves critical thinking. It allows students to use and understand their First Amendment rights. The administration should applaud the students for being engaged and caring about each other.

Those opposed to the protest say that students are disrupting education. It's true the school day will be interrupted for 30 minutes, but that interruption is part of the point. School administrators will have no choice but to listen. Protests throughout history have changed America for the better. Students learn about that in history class, and now they could have a chance to be a part of the change.

Jameson should allow students to reschedule the protest without imposing Lemming's penalties. Student's safety is too important of an issue to silence students.

Impromptu Speaking

EVALUATION SHEET

INSTRUCTIONS

Contestants should be evaluated and ranked based on effectiveness of delivery, organization of ideas and the overall impression of the speech. Students draw three topics and have three minutes to prepare a speech. The maximum time limit for speaking is five minutes. There is no minimum time limit. Topics may be serious or humorous in nature. Note cards may not be used during the presentation. Please make your comments using language understandable to the contestant. Students and instructors appreciate constructive narrative comments. Please do not confer with other judges before ranking students. Judging decisions are an individual responsibility.

Speaker Number _____ **Speaker Name** _____

Section _____ **Topic** _____

CRITERIA

Evaluate the contestant in each category. Do NOT total these numbers to determine rank in the round. They are only designed to give the contestant an indication of strengths and weaknesses.

QUESTION	NEEDS WORK		GOOD		SUPERIOR
1. Was the presentation organized clearly and effectively?	1	2	3	4	5
2. Was the speaker's delivery smooth and articulate?	1	2	3	4	5
3. Did the student have adequate eye contact?	1	2	3	4	5
4. Did the student have a creative approach to the topic?	1	2	3	4	5
5. Was the speaker poised and confident?	1	2	3	4	5
6. Did the speaker have vocal variety?	1	2	3	4	5
7. Was the speaker interested and enthusiastic?	1	2	3	4	5
8. Did the speaker communicate with the audience?	1	2	3	4	5

WRITTEN EVALUATION

Comments should be constructive and supportive.

Judge's signature _____

A+ IMPROMPTU SPEAKING TOPICS

2020-2021 Invitational

PRELIMINARY ROUND

1. A time when I felt defeated was…
2. My favorite season of the year is…
3. The hardest decision I ever had to make was…
4. If I could teach a skill, it would be…
5. If I went on a road trip with one person, it would be…
6. It's important to say sorry because…
7. Responsibility means…
8. The best thing about summer vacation is…
9. Something I am looking forward to as I grow up is
10. If I found a hundred dollars on the street, I'd…
11. It's important to be kind because…
12. If I could travel to the past, I would…
13. My dream job is…
14. My favorite vegetable to eat is…
15. The best thing I ever created was…

A+ IMPROMPTU SPEAKING TOPICS

2020-2021 Invitational

PRELIMINARY ROUND

CUT APART FOR TOPIC SELECTION

1. A time when I felt defeated was…

2. My favorite season of the year is…

3. The hardest decision I ever had to make was…

4. If I could teach a skill, it would be…

5. If I went on a road trip with one person, it would be…

6. It's important to say sorry because…

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13. My dream job is…

14. My favorite vegetable to eat is…

15. The best thing I ever created was…

A+ IMPROMPTU SPEAKING TOPICS

2019-2020 Invitational

FINAL ROUND

1. Recycling is important because…
2. An endangered animal I want to help save is…
3. The biggest challenge I ever faced was…
4. An afterschool program I would want to start would be…
5. If I discovered a town, I would call it…
6. You shouldn't be so quick to trust a stranger because…
7. If I was in the Olympics, I would compete in…
8. The craziest day of my life…
9. I paid it forward by…
10. A song that I most relate to is…
11. If I was invisible for a day, I would…
12. The best gift I ever received was…
13. A way I can contribute more to society is…
14. If I could change my name, I'd change it to…
15. If I wrote a book about my life, it would be titled…

A+ IMPROMPTU SPEAKING TOPICS

2019-2020 Invitational

FINAL ROUND

CUT APART FOR TOPIC SELECTION

1. Recycling is important because…

2. An endangered animal I want to help save is…

3. The biggest challenge I ever faced was…

4. An afterschool program I would want to start would be…

5. If I discovered a town, I would call it…

6. You shouldn't be so quick to trust a stranger because…

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12. The best gift I ever received was…

13. A way I can contribute more to society is…

14. If I could change my name, I'd change it to…

15. If I wrote a book about my life, it would be titled…

A+ IMPROMPTU SPEAKING TOPICS

2020-2021 Fall/Winter District

PRELIMINARY ROUND

1. An educator must be…
2. My favorite time of the day is…
3. If I was a doctor, I would specialize in…
4. My biggest worry about the future is…
5. If I could only save one possession from a fire, I'd…
6. Loyalty means…
7. If I was a professional athlete, I would play…
8. An activity I would like to do more with my family is…
9. A way I calm myself down when I'm scared is…
10. The most beautiful thing I have ever seen…
11. If I could have a party with any theme, I would pick…
12. The best gift I have ever given…
13. If I was the star in any movie, I would be…
14. If I started a collection, it would be of…
15. My favorite part of school is…

A+ IMPROMPTU SPEAKING TOPICS

2020-2021 Fall/Winter District

PRELIMINARY ROUND

CUT APART FOR TOPIC SELECTION

1. An educator must be…

2. My favorite time of the day is…

3. If I was a doctor, I would specialize in…

4. My biggest worry about the future is…

5. If I could only save one possession from a fire, I'd…

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12. The best gift I have ever given…

13. If I was the star in any movie, I would be…

14. If I started a collection, it would be of…

15. My favorite part of school is…

A+ IMPROMPTU SPEAKING TOPICS

2020-2021 Fall/Winter District

FINAL ROUND

1. The place I feel the safest is…
2. A time the outcome of a situation was not in my favor was…
3. My favorite genre of music is…
4. The most rewarding job is…
5. I would describe my personal style as…
6. The best way to get a point across, is to…
7. If I was president for a day…
8. I feel the world needs more…
9. A time I gave into peer pressure…
10. A culture I wish I understood more…
11. Something I was taught growing up that I don't believe in, is…
12. The person I think deserves to have his or her face on a bill of money, is…
13. A food item I would add to the school lunch menu would be…
14. I feel as though change is…
15. A fact about myself that would shock you is…

A+ IMPROMPTU SPEAKING TOPICS

2020-2021 Fall/Winter District

FINAL ROUND

CUT APART FOR TOPIC SELECTION

1. The place I feel the safest is …

2. A time the outcome of a situation was not in my favor was…

3. My favorite genre of music is…

4. The most rewarding job is…

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11. Something I was taught growing up that I don't believe in, is…

12. The person I think deserves to have his or her face on a bill of money, is…

13. A food item I would add to the school lunch menu would be…

14. I feel as though change is…

15. A fact about myself that would shock you is…

A+ IMPROMPTU SPEAKING TOPICS

2020-2021 Spring District

PRELIMINARY ROUND

1. Something that impresses me is…
2. In order for something to be meaningful…
3. If I could learn to cook one meal, it would be…
4. The first thing I would buy if I won the lottery is…
5. My favorite tv show is…
6. My idea of good art is…
7. Something I lost that I wish I could have back is…
8. I can avoid peer pressure by…
9. A time when it is okay to lie is…
10. If I could be a famous person for a day, I would be…
11. My perfect weekend consist of…
12. If I was the school principal for a day…
13. The best dream I have ever had was…
14. The food I think is best for your health is…
15. The smartest person I know is…

A+ IMPROMPTU SPEAKING TOPICS

2020-2021 Spring District

PRELIMINARY ROUND

CUT APART FOR TOPIC SELECTION

1. Something that impresses me is…

2. In order for something to be meaningful…

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13. The best dream I have ever had was…

14. The food I think is best for your health is…

15. The smartest person I know is…

A+ IMPROMPTU SPEAKING TOPICS

2020-2021 Spring District

FINAL ROUND

1. If cellphones did not exist…
2. My favorite way to be active is…
3. It's better to be a kid than an adult because…
4. The best way to study for a test…
5. Something you can never have too much of is…
6. The best activity for team building is…
7. My idea of beauty…
8. I think school uniforms…
9. If I started a business, it would be…
10. An incurable disease I would find the cure for would be…
11. Parents get frustrated because…
12. If I heard a false rumor about my friend, I would…
13. When I feel uncomfortable…
14. The best way to get someone's attention is to…
15. Something that most think is funny that I don't is…

A+ IMPROMPTU SPEAKING TOPICS

2020-2021 Spring District

FINAL ROUND

CUT APART FOR TOPIC SELECTION

1. If cellphones did not exist…

2. My favorite way to be active is…

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15. Something that most think is funny that I don't is…

CONTESTANT NUMBER:

FOR GRADER USE ONLY Score Test Below: _____out of 75. Initials_____ _____out of 75. Initials_____ **Papers contending to place:** _____out of 75. Initials_____	**University Interscholastic League** **A+ Listening Contest • Answer Sheet**

Write your contestant number in the upper right corner, and circle your grade below.

Circle Grade Level : 5 6 7 8

1. **A B C D**
2. **A B C D**
3. **A B C D**
4. **A B C D**
5. **A B C D**
6. **A B C D**
7. **A B C D**
8. **A B C D**
9. **A B C D**
10. **A B C D**
11. **A B C D**
12. **A B C D**
13. **A B C D**
14. **A B C D**
15. **A B C D**
16. **A B C D**
17. **A B C D**
18. **A B C D**
19. **T F**
20. **T F**
21. **T F**
22. **T F**
23. **T F**
24. **T F**
25. **T F**

UIL LISTENING CONTEST - GRADES 7-8
INVITATIONAL 2020-2021

Contest Script- "Hummingbirds"

Imagine that you are walking down the sidewalk in a quiet neighborhood. Hanging on many porches, poles, or trees are bright red containers of sugary sweet water. Sometimes the water red. Other times it is clear. Many of the containers have yellow flowers on them. What in the world is this? Suddenly you see a flurry of movement. Looking closer you see a tiny bird with wings fluttering so fast you can barely see them. It's a hummingbird.

Brightly colored hummingbirds are one of nearly 10,000 bird species in the world. Here in the United States we see them zipping about during the spring and summer months. If you listen closely, you can even hear the buzzing sound made by their wings and a distinctive chirp they make as they communicate with each other. Remarkably,
1:00 hummingbirds are native to North America and South America, which are part of the Western Hemisphere. In fact, hummingbirds only live naturally in the Western Hemisphere and are only found elsewhere if they are in captivity. There are no hummingbirds in Europe, Africa, Asia, Australia, or Antarctica. Let's take a few minutes to look at the physical features of these amazing little birds.

Hummingbirds are the world's smallest bird. Most hummingbirds are known by their beautiful throat color. However, contrary to popular belief, it isn't caused by the color of their feathers. Instead, it is caused by iridescence in the arrangement of the feathers. Iridescence means that certain surfaces appear to gradually change color as the angle you are viewing it from changes. For example, think about the surface of soap bubbles as they float through the air. As they move, they change color before your eyes. Light, moisture, angle, and other factors all influence just how bright the colorful feathers at the throat of the bird appear. Hummingbirds have fewer feathers than any other species

2:00 of bird in the world. They do not need as many feathers because they are so tiny in size. They only have 1,000 to 1,500 feathers which makes them more lightweight and helps them in their flight.

Roughly 25-30 percent of a hummingbird's weight is in the broad muscles of its chest. These are called the pectoral muscles and are used mainly for flying. The life of a hummingbird is spent mostly in flight. Unlike other birds, hummingbirds cannot walk or hop. They can use their feet to scoot sideways while they are perched and sometimes use them for scratching an itch. Their feet have evolved smaller than most because they are more efficient for flying. An average hummingbird's heart rate is more than 1,200 beats per minute. Imagine your own heart beating. Humans usually have an average heart rate of only 60 to 100 beats per minute. Multiply that by about 200 times. That's really, really fast. Another interesting fact about hummingbirds is that they have no sense of smell. That's such a shame because they are always flying around beautiful flowers. At least they can see the pretty colors. They have very good eyesight.

3:00

That brings us to what hummingbirds are doing flying around all those flowers. As you can guess, hummingbirds use the nectar from flowers as food. Hummingbirds digest natural sucrose, the sugar found in the nectar of flowers. Because it must consume approximately one half of its weight in sugar every day, the average hummingbird must eat from five to eight times each hour. It uses the energy efficiently producing only 3 percent waste as it uses 97 percent of the sugar it eats for the energy it needs to stay alive. In addition to nectar, they also eat small insects and spiders as well as sipping tree sap or juice from leaky fruits.

Hummingbirds have long bills that look like straws. However, they do not suck the nectar as you would a soda. They actually lick it with fringed, forked tongues. A hummingbird can lick 10 to 15 times per second while feeding. Again, that is really, really fast. The bill of the sword-billed hummingbird, found in the Andes Mountains in South America, can reach up to 4 inches long. That's longer than the body of most hummingbirds. It

4:00

can be so heavy that the birds may perch holding their bills straight up. These birds hold the record for the longest bill relative to the overall body size.

Hummingbirds are very small, as you know. The calliope hummingbird is the smallest bird species in North America and measures only 3 inches long. The bee hummingbird, which is native to Cuba, measures 2.25 inches long. The average ruby-throated hummingbird can be as large as 3.5 inches long, but it weighs only 3 grams. Think about the weight of a nickel. A nickel weighs about 5 grams. That's almost twice as much as the ruby-throated hummingbird! In fact, it would take more than 150 ruby-throated hummingbirds to weigh one pound. Despite their small size, hummingbirds are one of the most aggressive bird species. They will regularly attack other birds that invade their territory. If you have hummingbird feeders around your home, you may see that there is one dominant hummingbird that acts as a guard for all of the feeders and chases any intruders away.

5:00

Hummingbirds lay the smallest eggs of all species of birds in the world. Their eggs are less than ½ inch long. That's smaller than a jellybean! A female hummingbird will usually lay 2 eggs in the hummingbird nest. However, the eggs are generally laid on 2 different days. The mother hummingbird keeps her eggs warm for 15-18 days. After only 18-28 days, the baby hummingbirds leave the nest and are on their own. The average lifespan of a wild hummingbird is between 3 and 5 years. But, depending on the species, habitat, and predators, the bird could live up to 12 years.

6:00

Identifying the species of hummingbirds can be very challenging. The International Ornithological Congress (IOC) says that there are 360 distinct species in the world. However, many of the species, including Black-chinned, calliope, and broad-tailed hummingbirds can interbreed. This can create hybrid species. Only eight species regularly breed in the United States. The rest of the hummingbirds are mainly tropical species and do not usually migrate. They are found in Central and South America as well as throughout the Caribbean. Of the ones that do migrate, the rufous hummingbird has

the longest migration. The rufous fly from Alaska and Canada more than 3,000 miles to their winter home in Mexico. Their maximum forward flight speed is 30 miles per hour. However, they can reach up to 60 miles per hour in a dive. The ruby-throated hummingbirds fly 500 miles nonstop across the Gulf of Mexico during the spring and fall. Although some people believe that they ride on the back of other birds during migration, this is just a myth. The peak fall migration time is from July through August or early September.

7:00 Hummingbirds have very unique flight capabilities. Many birds have specialized wing shapes that make them better fliers. Think of the broad wings of a vulture, the pointed wings of a falcon, and the rounded wings of an owl. Hummingbirds are unique because they not only fly forward, but also backward, sideways, and straight up. They can hover much longer than any other hovering species such as ospreys, kestrels, and kingfishers. Hummingbirds can even do somersaults! These amazing flying feats are made possible by physical adaptations that make them different from other birds. Hollow bones, fused vertebrae, and fused pelvic bones eliminate excess muscles and ligaments. This causes the bird to be lighter without losing the necessary support of their internal organs. Longer, stronger bones in the finger portion of the wing keep the wing stable. An enlarged heart provides more efficient pumping, which allows for faster wing beats and more oxygen distributed to the muscles. A hummingbird's wings beat between 50 and 200 flaps per second depending on the direction of the flight and air conditions.

8:00 Most birds fly with upstrokes and down strokes. This generates lift and power on the downstroke of each wing beat. Hummingbirds, however, are, you guessed it, unique. They stroke their wings forward and backward while pivoting up to 180 degrees at the shoulder to rotate each wing in a pattern which makes a horizontal figure eight in the air. Each beat generates lift on both forward and backward strokes. This keeps it aloft and allows it to hover. The tiniest adjustment can change the angle of their wing and alter the direction of flight. This allows the hummingbird to seemingly change direction in an

instant no matter which way the wing is stroking. This type of flight control is similar to insects such as dragonflies and not at all typical of birds.

For such a small bird, they are incredibly special. The next time you pass a hummingbird feeder, take a look around. You might just see one of nature's most unique species.

INVITATIONAL 2020-2021

A+ ACADEMICS

University Interscholastic League

Listening

grades 7 & 8

DO NOT OPEN TEST
UNTIL TOLD TO DO SO

UIL LISTENING CONTEST - GRADES 7-8
INVITATIONAL 2020-2021
Test

"Hummingbirds"

1. What part of a hummingbird is iridescent?
   A. beak
   B. feet
   C. feathers
   D. wings

2. An average hummingbird's heart rate is more than _____beats per minute.
   A. 1000
   B. 1100
   C. 1200
   D. 1300

3. Small feet a benefit to hummingbirds because they
   A. make it easier to perch
   B. allow them to walk quickly
   C. are lighter when flying
   D. can be used to scoot on a branch

4. Hummingbirds have no sense of
   A. sight
   B. smell
   C. taste
   D. hearing

5. What is sucrose?
   A. a natural sugar found in nectar
   B. a type of flower hummingbirds like
   C. a hybrid species of hummingbird
   D. a bone in the pelvis of the bird

6. The flight of a hummingbird is similar to that of a
   A. robin
   B. dragonfly
   C. bumblebee
   D. ladybug

7. According to the IOC, how many distinct species of hummingbirds are in the world?
   A. 150
   B. 270
   C. 310
   D. 360

8. What is the maximum forward flight speed of the rufous species?
   A. 30 miles per hour
   B. 25 miles per hour
   C. 45 miles per hour
   D. 60 miles per hour

9. What is the peak migration time for the ruby-throated hummingbird?
   A. May-June
   B. June-July
   C. July-August
   D. August-September

10. How long does a mother hummingbird usually sit on her eggs before they hatch?
   A. 7-10 days
   B. 24-28 days
   C. 18-23 days
   D. 15-18 days

11. How many ruby-throated hummingbirds would it take to equal the weight of 3 nickels?
   A. 3
   B. 4
   C. 5
   D. 6

12. From which country is the bee hummingbird native?
   A. United States
   B. Cuba
   C. Jamaica
   D. Mexico

13. The calliope hummingbird is the smallest bird species in North America and measures only _____ inches long.
   A. 1
   B. 2
   C. 3
   D. 4

14. What is one unusual feature of the sword-billed hummingbird of the Andes mountains in South America?
   A. the bill can reach up to 4 inches long
   B. the tongue of the bird is sharp enough to tear flower petals
   C. the female can lay as many as 3-4 eggs in one day
   D. the bird relies on grasses and insects for food due to the climate

15. The rufous hummingbird migrates from
   A. Alaska to Florida
   B. Canada to Mexico
   C. Southern US to Caribbean
   D. South Carolina to Cuba

16. How do hummingbirds get nectar from flowers or hummingbird feeders?
   A. They use their pointed beak as a straw.
   B. They brush against it as they fly and carry it to other plants.
   C. They lick it using a long, forked tongue.
   D. They impale it using their sharp beak.

17. Which of the following is not a characteristic of the hummingbird that aids in flight?
   A. hollow bones
   B. fused vertebrae
   C. enlarged heart
   D. fewer internal organs

18. Although it must eat five to eight times per hour, the hummingbird uses approximately _____ percent of the food it consumes.

A. 89 B. 97

C. 92 D. 99

True/False

19. Hummingbirds live naturally in the Western Hemisphere and in Asia and Australia. They are only found on other continents such as Europe, Africa or Antarctica if they are in captivity.

20. Most hummingbirds are known by their beautiful throat color caused by the contrasting color of their feathers surrounding their throats.

21. Hummingbirds have only about 1,000 to 1,500 feathers which make them more lightweight and helps them in flight. This is fewer feathers than any other species of bird in the world.

22. Roughly 50 percent of a hummingbird's weight is in the broad pectoral muscles of its chest due to the fact that the hummingbird spends most of its life in flight.

23. Despite their small size, hummingbirds are one of the most aggressive bird species and will regularly attack other birds that invade their territory.

24. A female hummingbird will usually lay 2 eggs which are about ½ inch long about 2 hours apart.

25. Hummingbirds can stroke their wings forward and backward while pivoting up to 180 degrees at the shoulder to rotate each wing in a pattern which makes a horizontal figure eight in the air.

UIL LISTENING CONTEST - GRADES 7/8
INVITATIONAL MEET 2020-2021
ANSWER KEY

"Hummingbirds"

1. C
2. C
3. C
4. B
5. A
6. B
7. D
8. A
9. C
10. D
11. C
12. B
13. C
14. A
15. B
16. C
17. D
18. B
19. False
20. False
21. True
22. False
23. True
24. False
25. True

UIL LISTENING CONTEST - GRADES 7 & 8
FALL/WINTER DISTRICT 2020-2021

Contest Script- "Wind Turbines: The Wave of the Future"

If you live in west Texas or even along the coastal areas, you may have seen them. Large white windmills in rows stretching out for miles. In the dark, their glowing red lights blink on and off like alien eyes letting low flying planes know they are there. What are these windmills, and why are we installing them across our beautiful Texas countryside? Let's find out.

First, we need to understand about wind energy. Wind energy comes from the sun. As solar radiation hits the earth, it creates heat. This heat rises allowing cooler air to move in to fill the void. That movement of cooler air is called wind, or wind energy.

In the past, whenever you saw a windmill, its main function was to pump water up out of the ground for farmers to use with their crops or livestock. These windmills are different. They are actually called wind turbines. A wind turbine, or otherwise known as a wind energy converter, is a machine that converts kinetic energy into electrical energy. Kinetic energy is

1:00 the energy caused by the motion of an object.

So, when the blades of the wind turbine move, that is kinetic energy. A wind turbine has a machine inside of it that takes that motion and uses it to create electricity. Here in Texas, we use that electricity to power homes and businesses in several of our big cities. Texas has over 40 different windfarms. If Texas were a country, it would rank fifth in the world in wind power production. In fact, Texas produces the most wind power of any state in the United States.

People have been using the power of the wind for a long time. History records that in 10 AD, the wind wheel of Hero of Alexandria, a wind powering machine, was pioneered. Hero of Alexandria was a Greek mathematician and engineer who was active in his native city of Alexandria, Roman Egypt. The first recorded instance of wind power plants was in Sistan, an Eastern province of Persia in the 7th century. These vertical axle windmills had long vertical drive shafts with rectangular blades. These windmills were made of 6 to 12 sails covered in

2:00 cloth or reed mats and were used to grind grain or draw up water. They were also used in the

gristmill and sugar cane industries. Wind power first appeared in Europe during the Middle Ages during the 12th century. There is also evidence that German crusaders used windmills in Syria around 1190. The first electricity-generating wind turbine was a battery charging machine. James Blyth used this electricity to light his home in Scotland. American inventor Charles F. Brush built the first automatically operated wind turbine in 1887. It was 50 feet tall and weighed 4 tons. It was used to power a 12-kilowatt generator.

By 1900, there were about 2500 electricity producing windmills in Denmark which produced an estimated combined peak power of about 30 megawatts. The largest machines were 75 feet wide, stood 79 feet tall and had 4 blades. By 1908, there were 72 wind-driven electric generators in the United States. These generators produced between 5 kilowatts to 25
3:00 kilowatts apiece. By the 1930s, wind generators for electricity were common on farms in the United States because electricity plants had not been built across the country with wires distributing the current like we have today. However, with the advancement of large electric plants driven by the use of fossil fuels, the use of wind generators for electricity declined.

Now, nearly 100 years later, the need for an energy source that is more sustainable, and less pollutant has caused wind turbines to again be more and more common place. The wind farms we see in our coastal plains and across west Texas are part of an important source of renewable energy that allow us to reduce our reliance on fossil fuels. The smallest turbines can be used to create electricity to charge batteries, power motors on boats or even power traffic warning signs. Larger turbines can be used by big companies for use in cities or by individuals who use what they need and then sell the unused electricity back to their utility supplier using the electrical grid. Wind power is considered to leave the smallest environmental footprint compared to waterpower, geothermal, power, coal or gas.

4:00 The majority of wind turbines in Texas have 3 major components. First are the blades. The huge rotor blades on the front of a wind turbine are the actual turbine part. The blades resemble the airfoil wings on a plane because of their unique curved shape. As the wind blows past the turbine's blades, it causes them to spin around. You may remember seeing them move like the blades on a box fan or ceiling fan. As the blades spin, the wind loses some of

its kinetic energy and the turbine gains it. The amount of energy a turbine makes depends on how long the blades are. The longer the blades are, the more energy the turbine will be able to generate. Plus, because the turbine gains its energy from the wind, the faster the wind blows, the more energy it gives to the turbine. In fact, something interesting happens. If the wind blows twice as fast, it gives off eight times as much energy. But, since the wind speed changes all the time, wind farmers link their wind turbines together with electric wires creating
5:00 a power grid. This produces a much steadier supply. Imagine if the strength of the electricity in your home depended on the speed of the wind. That would be difficult.

In order for wind to turn the turbine blades to create the spin of the rotor needed to create electricity, the blades must face in the direction of the wind. Believe it or not, a special machine in the tower detects the direction of the wind and moves the position of the blades accordingly. The blades are like propellers on airplanes except that they run in reverse. Airplane engines cause the propeller to push the air which propels the airplane forward. The air is pushed by the blades. But, on a wind turbine, the blades are pushed by the air and caused to rotate.
The second component is the shaft. The shaft is connected to the center of the turbine. As the huge rotor blades rotate, they cause the shaft to rotate as well.

This rotation is called mechanical or rotational energy. The opposite end of the shaft is connected to a generator, the third part of the wind turbine. Basically, a generator is a simple device. It uses the properties of electromagnetic induction to produce electrical voltage. Electrical voltage is what causes electricity to move through a wire from one point to another.
6:00 So, generating voltage is, in effect, the same as generating electricity. A simple generator has magnets and a conductor such as coiled wire. As the shaft spins, the magnets spin around the coil of wire. As the magnets spin around the wire, it creates the electrical voltage. There is a lot of science involved in this, but that is basically how it works.

If you've ever stood near a large wind turbine, you know that they are absolutely enormous and are mounted on very high towers. Since we know that the longer the blades are, the more energy they can capture, it makes sense that they would be very high off the ground allowing the blades to move freely without worry about touching anything. Wind turbines used for the

large wind farms we see in our state are usually approximately 13 feet wide at the base and between 230 and 260 feet tall. If you add the length of one of the blades in an upright position, the total height is approximately 406 feet.

Once the electric current is produced by the generator, it flows through a cable running down through the inside of the turbine tower or shaft. Inside the tower, a step-up transformer converts the electricity to about 50 times higher voltage so that it can be transmitted to a power grid or nearby buildings or communities. If the electricity is going to a power grid, it can be converted even higher to 130,000 volts or more! Once the power reaches the grid, homes can enjoy clean, green energy which means that the turbines do not produce greenhouse gas emissions or pollution.

7:00

Wind turbines can even be installed on land used for other purposes. For example, if they are installed on a farm, the farmer can still use the land to grow crops. He simply plants around the base of the tower.

Some people have wondered if the wind turbines have a negative effect on wildlife where they are located. Some studies have been conducted, but most of the studies were done by people who would benefit from the money made by selling the wind energy. The National Wind Coordinating Committee recently considered "peer-reviewed research." This research showed that there was evidence that birds and bats had collided with the wind turbines. The birds and bats had also had deaths and injuries due to the change in air pressure caused by the spin of the turbines. The NWCC concluded that these instances were very few and did not pose a threat to species populations. However, some wildlife organizations disagree with those findings. They say that wind turbines have harmed and killed thousands of threatened and endangered bird species, including the golden eagle.

8:00

In the search for renewable, green energy, these discussions will continue. Wind is a naturally occurring, non-polluting endless source of kinetic energy. Who knows? Maybe your grandchildren will live in a world where wind energy is as normal as the use of coal and oil is for us today.

FALL/WINTER DISTRICT 2020-2021

A+ ACADEMICS

University Interscholastic League

Listening

grades 7 & 8

DO NOT OPEN TEST
UNTIL TOLD TO DO SO

UIL LISTENING CONTEST - GRADES 7-8
FALL MEET 2020-2021
TEST

"Wind Turbines: The Wave of the Future"

1. What is wind energy?
   A. energy created when wind blows the blades of a turbine
   B. energy caused by the motion of an object used to create electricity
   C. energy caused by the rising of heated air allowing cooler air to rush in
   D. energy created by generators in windmill farms which contain large magnets

2. Why were windmill generators common in rural areas during the 1930s?
   A. very few electric lines or plants existed in the less populated areas
   B. most farmers could not afford to purchase electricity from electric plants
   C. fewer roads in these areas created difficulty in installation of power lines
   D. during this time, the most popular way to create electricity was by windmill

3. What caused the decline of the use of wind powered generators?
   A. the use of fossil fuels to power electric plants
   B. the expense involved in installation of windmills
   C. the need for a steadier source of electricity
   D. the lower cost of mass generated electricity from power plants.

4. What are the three parts of a wind turbine?
   A. blades, shaft, power convertor
   B. blades, shaft, generator
   C. blades, convertor, magnet
   D. blades, generator, power convertor

5. A wind turbine is also known as
   A. kinetic energy
   B. generator
   C. electric transporter
   D. wind energy convertor

6. Who was Hero of Alexandria?
   A. a general from Egypt
   B. a mathematician from Rome
   C. a great leader from Persia
   D. an engineer from Roman Egypt

7. How many feet tall is a typical wind turbine tower in Texas if you do not add the height of the blades?
   A. between 230 and 260 feet
   B. between 260 and 290 feet
   C. between 290 and 330 feet
   D. between 350 and 400 feet

8. What does the acronym NWCC stand for?
    A. Natural Wind-power Conservation Committee
    B. National Windmill Conservation Collaborative
    C. National Wind Coordinating Committee
    D. Natural Windmill Coordinating Collaborative

9. What is a step-up transformer used for?
    A. to bring kinetic energy to the generator
    B. to provide a buffer between raw energy and electric current
    C. to deliver electric current from the turbine to the cities that use it
    D. to convert the electricity to a higher voltage

10. Why are wind turbines considered to be a source of green energy?
    A. The turbines allow for farming near the towers.
    B. The turbines do not produce carbon emissions or pollution.
    C. The turbines do not use water and are less intrusive into nature.
    D. The turbines use very few fossil fuels so they do not deplete our resources.

11. By 1900, about how many electricity producing windmills could be found in Denmark?
    A. 1500 B. 2000
    C. 2500 C. 3000

12. In what year did American inventor Charles Brush build the first automatically operated wind turbine?
    A. 1931 B. 1887
    C. 1190 D. 1900

13. What was the first electricity-generating wind turbine used for?
    A. heating homes B. pumping water
    C. charging batteries D. lighting streets

14. In which country did James Blythe use energy created by a wind turbine to light his home?
    A. the United States B. England
    C. Egypt D. Scotland

15. By 1908, how many wind-driven electric generators in the United States that produced between 5 kilowatts to 25 kilowatts apiece?
    A. 70 B. 71
    C. 72 D. 73

16. Approximately how many feet wide is the base of a wind turbine?
    A. 12 B. 13
    C. 14 D. 15

17. If Texas were a country, where would it rank in the world based on wind power Production?
    A. first B. third
    C. fifth D. seventh

18. Because the turbine gains its energy from the wind, when the wind blows twice as fast, it gives off _____ times as much energy.
    A. 8 B. 4
    C. 10 D. 5

True/False

19. A farmer may use the land surrounding the windmill as long as he leaves enough distance from the tower to allow for safety from the electric current and protection from danger involved in using water near the electricity.

20. As the huge rotor blades rotate, they cause the shaft of the wind turbine to rotate as well, which is called rotational or mechanical energy.

21. Generating voltage is, in effect, the same as generating electricity.

22. Wind power first appeared in Europe during the Middle Ages during the 12th century, and German crusaders used windmills in Syria around 1190.

23. The first automatically operated wind turbine was 60 feet tall, weighed 3 tons and was used to power a 8-kilowatt generator.

24. When the blades of the wind turbine move, that is kinetic energy.

25. Wind power is considered to leave one of the smallest environmental footprints second only to solar when compared to waterpower, geothermal, power, coal or gas.

UIL LISTENING CONTEST - GRADES 7-8
FALL/WINTER DISTRICT 2020-2021
ANSWER KEY

"Wind Turbines: The Wave of the Future"

1. C
2. A
3. A
4. B
5. D
6. D
7. A
8. C
9. D
10. B
11. C
12. B
13. C
14. D
15. C
16. B
17. C
18. A
19. False
20. True
21. True
22. True
23. False
24. True
25. False

UIL LISTENING CONTEST - GRADES 7 & 8
Spring District 2020-2021

Contest Script- "What is Teflon?"

If you have ever cooked in a skillet or watched someone else cook, chances are that you have seen Teflon. Most pots, pans, and skillets have it. Without it, everything sticks. What is Teflon and who invented it? Let's find out.

The man credited with the invention of Teflon is Roy Plunkett. Roy J. Plunkett was a farm boy born in 1910 in New Carlisle, Ohio. He attended school and graduated from high school in Pleasant Hill, Ohio. From there he went to college at Manchester College in Indiana where he earned a Bachelor's degree in chemistry. His roommate was Paul Flory. After graduation, Paul went on to Ohio State University where he completed both his Master's degree and his doctorate, or Ph.D, in physical chemistry in 1934. Roy stayed at Manchester College and earned his Master's degree and later his Ph.D. in organic chemistry in 1936. When DuPont hired Flory, he recommended they look into hiring Roy Plunkett.

1:00 Upon his graduation, Plunkett was appointed research chemist for the American division of DuPont in Deepwater, New Jersey where he worked in the Jackson Laboratory.
Since 1909, the General Motors Corporation had been looking for a safe chemical compound that could be used as a refrigerant to provide air conditioning in vehicles. The chemicals that were currently used included ammonia, sulfur dioxide, and propane – all of which were dangerous and could actually kill the occupants of the vehicle that used it. General Motors employees were skilled in machinery, but not so much in chemicals. As a result, they turned to DuPont for help. In 1930, DuPont and General Motors created a partnership they called Kinetic Chemicals Inc. in search of a chemical compound that would be noncorrosive to machine parts and free of toxicity and flammability. Eventually they discovered the compound Freon and went on to produce R-12 to cool automobiles for the next 50 years. This is where Roy Plunkett comes in.

By 1937, after he had worked for DuPont for two years, he began trying to find another safe refrigerant. The current chemicals – ammonia and sulfur dioxide – were still too dangerous.
2:00 Roy began using a chemical called tetrafluoroethylene (tetra – flouro – ethy – lene) or TFE that

was compressed as a gas into tanks. One night he decided to store the chemical in dry ice to keep the gas from expanding too much and exploding. The next day he wanted to use the TFE gas in a cooling-fluid experiment, but when he opened the valve to the tank, nothing came out. He assumed that the gas had somehow leaked out.

However, when he decided to check his theory by putting the tank on a scale, he discovered that it weighed the same amount as it did when it was full of the pressurized gas. His next theory was that somehow the valve was clogged preventing the gas from escaping. He and his assistant tried to unclog the valve, but it didn't help. Finally, Roy decided to open the tank itself. He unscrewed the lid and was surprised when a bunch of white waxy flakes fell out. He and his assistant sawed the tank in half and discovered that the inside of the tank was coated with the same white, waxy, slippery material.

3:00 Apparently, the material had polymerized. To be polymerized means that many small molecules combine into a new, larger molecule that repeats itself like a chain. The new chemical polymer was called PTFE, and its molecule chain was made of spirals of carbon atoms attached to two fluorine atoms bound together so tightly that it was nearly impossible for any other molecule to penetrate it. The common name for this new discovery was Teflon.

Roy began wondering what he could do with the new polymer, so he decided to do some more tests. He later told his wife that he originally thought the whole thing was a flop and should just be scrapped. However, when he decided to go ahead and test it, he changed his mind completely. One of the amazing qualities of Teflon was that it was very slippery. Its surface friction was so low that it would not stick to anything and nothing would stick to it. In fact, not even a gecko lizard, an animal with incredible grip, could climb out of a pan coated with Teflon. In addition, it was inert. This means that it did not react with any other substances. When Roy heated it or froze it, it remained the same. He tried pouring acid onto it, but the glob of slippery stuff did not change. He covered a plastic rod with the material and dipped it
4:00 into the acid. The rod dissolved in the acid, but the coating did not.

This new discovery was so exciting that DuPont quickly patented the new chemical. Several major companies immediately realized the value of the new substance and began using it. Ten years later, in 1948, DuPont was producing 20 million pounds of Teflon each year! At this

time, however, it had not yet been used as a coating for non-stick cookware. Most of the use for Teflon was for the Manhattan Project, a secret government research and development project during World War II that produced the first nuclear weapons. Teflon was used for gaskets and seals because it was inert and could contain the corrosive uranium and other materials used in the atomic bomb. The creation of the nation's first nuclear weapon required an enormous number of valves, seals and pipes that all had to be coated with Teflon.

Teflon was finally tested for use on pots and pans in 1954. A French engineer named Marc Gregoire had been using Teflon to help untangle his fishing gear. His wife asked him if he could try to put Teflon on her pan so that food wouldn't stick to it. It wasn't long before he had created the first PTFE-coated, non-stick cooking pan. Soon the pans were sold in Europe using the name Tefal – a combination of the word Teflon and the word aluminum. In 1961, an entrepreneur named Marion Trozzolo created an American-made Teflon pan. His company, Laboratory Plasticware Fabricators, manufactured "The Happy Pan", which was sold with a free spatula. His pan was such a big success that an original Happy Pan is on display in the Smithsonian Museum. Soon there were many brands of Teflon cookware including some fortified by other materials like diamond and titanium.

5:00

You may be wondering since nothing sticks to Teflon, how can you get it to stick to pots and pans. There are two steps to the process. The first thing that is done is called sintering. This is very similar to melting. The Teflon is heated at a very high temperature and then pushed down tightly onto the surface of the pan. Then, in order to keep the fluorine atoms from allowing the Teflon to peel away, the pans are blasted with ions under an electric field in a high vacuum. This causes the fluorine atoms to break away between the Teflon and the pan allowing the Teflon to stick.

6:00

Today, Teflon is applied to bakeware and small electrical appliances such as grills, fry pans, panini presses, and waffle makers. However, it can be found in more places than you'd actually expect. About fifty percent of Teflon production is used in the insulation of wires for computers and aerospace equipment. It is also used in almost any pipe with moving parts to help reduce friction. Plumbers use Teflon tape when screwing pipes together to prevent leakage. There probably isn't a single industry that hasn't been impacted by Teflon. Hospital catheters, ski

bindings and even dental fillings and dental floss contain it. NASA has even used it in space crafts and astronauts' suits.

One of the most unusual uses for Teflon is as a protective coating for fabric. Have you ever wondered why your raincoat repels water? It's Teflon! In 1976, a scientist named Robert Gore co-invented a technique that led to using Teflon as a stain-repellant for carpets clothing and furniture. Teflon fabric protector resists stains, dirt, oil, and moisture. It can be found in furniture, clothing, backpacks, purses – anything that you want to stay clean and dry. It does not change the color or texture of the fabric and still allows air to pass through.

7:00

In 1951, the city of Philadelphia awarded Roy Plunkett the John Scott Medal for his invention that promoted the "comfort, welfare, and happiness of humankind". He was also inducted into the National Inventors Hall of Fame in 1985. DuPont honored him in 1988 with an award given in his name to celebrate the 50th anniversary of the discovery of Teflon. The Plunkett Award recognizes those who create important new products that use Teflon. Roy Plunkett passed away from cancer in 1994. He was 83 years old.

SPRING DISTRICT 2020-2021

A+ ACADEMICS

University Interscholastic League

Listening

grades 7 & 8

DO NOT OPEN TEST
UNTIL TOLD TO DO SO

UIL LISTENING CONTEST - GRADES 7-8
SPRING DISTRICT 2020-2021
TEST

"What is Teflon?"

1. Where did Roy Plunkett receive his Masters and Doctorate degrees?
   A. Ohio State University
   B. Mid-Western University
   C. Manchester College
   D. Indiana College

2. What does it mean when a substance is polymerized?
   A. one large molecule is separated into smaller ones that form a chain
   B. small molecules combine into a new larger molecule that repeats itself
   C. a series of identical molecules lock together and cannot be separated
   D. a chain of small molecules wraps around a larger molecule

3. By 1948, how many pounds of Teflon was DuPont producing each year?
   A. 10 million
   B. 15 million
   C. 20 million
   D. 25 million

4. In what year was Teflon tested for use on pots and pans?
   A. 1949
   B. 1950
   C. 1952
   D. 1954

5. Who invented a technique that led to using Teflon as a stain-repellant for carpets clothing and furniture?
   A. Robert Gore
   B. Marion Trozzolo
   C. Paul Flory
   D. John Scott

6. Why did General Motors partner with DuPont in 1909?
   A. They were trying to find a new polymer to coat engine parts.
   B. They were trying to find a new refrigerant for automobiles.
   C. They were trying to create a new compound to replace Freon.
   D. They wanted to find a substance to repel water.

7. The polymer PTFE is composed of both fluorine and
   A. sulfur dioxide
   B. propane
   C. carbon
   D. ammonia

8. What animal did Roy Plunkett use when testing Teflon?
   A. snail
   B. gecko
   C. octopus
   D. Togo frog

9. In what year was the first American made Teflon coated cooking pan created?
   A. 1950 B. 1951
   C. 1960 D. 1961

10. What was the benefit of Teflon being inert?
   A. It would not react with other chemicals.
   B. It was so slippery that nothing could stick to it.
   C. It could be stored easily inside metal cylinders.
   D. It could be changed into many different forms and had many uses.

11. In 1951, the city of Philadelphia awarded Roy Plunkett the John Scott Medal for his invention that
   A. allowed the production of easier to use and clean tools and cooking utensils.
   B. set in motion a healthier, cleaner society.
   C. promoted the comfort, welfare, and happiness of humankind.
   D. created a new industry dedicated to nonstick surfaces.

12. About fifty percent of Teflon production is used in
   A. waterproofing uniforms and hazard suits
   B. the insulation of wires for computers and aerospace equipment
   C. nonstick coating for pots and pans
   D. tape for securing seals between screws and nuts

13. In order to for sintering to occur, Teflon is heated at a very high temperature and
   A. a pan is dipped into the resulting liquid.
   B. flash frozen onto the surface of a pan.
   C. bombarded with electron magnets to fuse it to a pan.
   D. then pushed down tightly onto the surface of the pan.

14. Roy Plunkett earned his Master's degree and later his Ph.D. in
   A. chemical manipulation B. organic chemistry
   C. chemical engineering D. physical chemistry

15. Upon his graduation, what was Roy Plunkett's first job?
   A. research chemist for DuPont
   B. laboratory technician for Jackson chemical
   C. chemical machinist for General Motors
   D. refrigeration researcher for Kinetic Energy Partners

16. The name Tefal, a brand of non-stick cookware, comes from
   A. the name of the man who invented it.
   B. the combination of the words Teflon and Aluminum
   C. the process used to bind the Teflon to the cookware
   D. the type of metal used in the cookware

17. Which type of atoms must be removed from Teflon after sintering in order for the Teflon to stick to the pan?
    A. aluminum
    B. fluorine
    C. carbon
    D. sulfur dioxide

18. Which award recognizes the invention of new products that use Teflon?
    A. the Teflon Award
    B. the DuPont Inventor's Award
    C. the Plunkett Award
    D. the National Teflon Inventor's Award

True/False

19. Using Teflon on fabrics can repel water and stains, but it can change the color or texture of the fabric and does not allow air to pass through.

20. Laboratory Plasticware Fabricators manufactured "The Happy Pan", which was sold with a free spatula and was such a big success that an original Happy Pan is on display in the Smithsonian Museum.

21. DuPont originally thought the whole thing was a flop and should just be scrapped.

22. While in search of a chemical compound that would be noncorrosive to machine parts and free of toxicity and flammability, Roy and others discovered the compound Freon and went on to produce R-12 to cool automobiles for the next 50 years.

23. The Manhattan Project was a secret government research and development project during World War II that produced the first nuclear weapons.

24. A French engineer named Marc Gregoire was using Teflon to help untangle his fishing gear when his wife asked him if he could try to put Teflon on her pan so that food wouldn't stick to it.

25. Plumbers use Teflon tape when screwing pipes together to prevent the pipe from fusing together due to chemical reactions between the metals.

UIL LISTENING CONTEST - GRADES 7-8
SPRING DISTRICT 2020-2021
ANSWER KEY

"What is Teflon?"

1. C
2. B
3. C
4. D
5. A
6. B
7. C
8. B
9. D
10. A
11. C
12. B
13. D
14. B
15. A
16. B
17. B
18. C
19. False
20. True
21. False
22. True
23. True
24. True
25. False

CONTESTANT NUMBER:

FOR GRADER USE ONLY Score Test Below: _____ Initials_____ _____ Initials_____ **Papers contending to place:** _____ Initials_____	**University Interscholastic League** **A+ Maps/Graphs/Charts Contest • Answer Sheet**

Write your contestant number in the upper right corner, and circle your grade below.

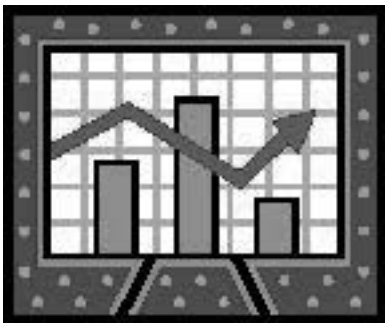
Circle Grade Level: 5 6 7 8

1.	**A**	**B**	**C**	**D**	26.	**T**	**F**			51.	**A**	**B**	**C**	**D**
2.	**A**	**B**	**C**	**D**	27.	**T**	**F**			52.	**A**	**B**	**C**	**D**
3.	**A**	**B**	**C**	**D**	28.	**T**	**F**			53.	**A**	**B**	**C**	**D**
4.	**A**	**B**	**C**	**D**	29.	**T**	**F**			54.	**A**	**B**	**C**	**D**
5.	**A**	**B**	**C**	**D**	30.	**T**	**F**			55.	**A**	**B**	**C**	**D**
6.	**A**	**B**	**C**	**D**	31.	**A**	**B**	**C**	**D**	56.	**T**	**F**		
7.	**A**	**B**	**C**	**D**	32.	**A**	**B**	**C**	**D**	57.	**T**	**F**		
8.	**A**	**B**	**C**	**D**	33.	**A**	**B**	**C**	**D**	58.	**T**	**F**		
9.	**A**	**B**	**C**	**D**	34.	**A**	**B**	**C**	**D**	59.	**T**	**F**		
10.	**A**	**B**	**C**	**D**	35.	**A**	**B**	**C**	**D**	60.	**T**	**F**		
11.	**A**	**B**	**C**	**D**	36.	**A**	**B**	**C**	**D**	61.	**A**	**B**	**C**	**D**
12.	**A**	**B**	**C**	**D**	37.	**A**	**B**	**C**	**D**	62.	**A**	**B**	**C**	**D**
13.	**A**	**B**	**C**	**D**	38.	**A**	**B**	**C**	**D**	63.	**A**	**B**	**C**	**D**
14.	**A**	**B**	**C**	**D**	39.	**A**	**B**	**C**	**D**	64.	**A**	**B**	**C**	**D**
15.	**A**	**B**	**C**	**D**	40.	**A**	**B**	**C**	**D**	65.	**A**	**B**	**C**	**D**
16.	**A**	**B**	**C**	**D**	41.	**T**	**F**			66.	**A**	**B**	**C**	**D**
17.	**A**	**B**	**C**	**D**	42.	**T**	**F**			67.	**A**	**B**	**C**	**D**
18.	**A**	**B**	**C**	**D**	43.	**T**	**F**			68.	**A**	**B**	**C**	**D**
19.	**A**	**B**	**C**	**D**	44.	**T**	**F**			69.	**A**	**B**	**C**	**D**
20.	**A**	**B**	**C**	**D**	45.	**T**	**F**			70.	**A**	**B**	**C**	**D**
21.	**A**	**B**	**C**	**D**	46.	**A**	**B**	**C**	**D**	71.	**T**	**F**		
22.	**A**	**B**	**C**	**D**	47.	**A**	**B**	**C**	**D**	72.	**T**	**F**		
23.	**A**	**B**	**C**	**D**	48.	**A**	**B**	**C**	**D**	73.	**T**	**F**		
24.	**A**	**B**	**C**	**D**	49.	**A**	**B**	**C**	**D**	74.	**T**	**F**		
25.	**A**	**B**	**C**	**D**	50.	**A**	**B**	**C**	**D**	75.	**T**	**F**		

INVITATIONAL 2020-2021

A+ ACADEMICS

University Interscholastic League



Maps, Graphs & Charts

grades 7 & 8

DO NOT OPEN TEST
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Asia

1. Which Indian city has the highest population?
    a. Cuttak
    b. Udaipur
    c. Ludhiana
    d. Lahore

2. Which country does China export most to?
    a. Japan
    b. United States
    c. European Union
    d. Taiwan

3. Which of the following capitals in not on the Persian Gulf?
    a. Iran
    b. Kuwait
    c. Qatar
    d. Yemen

4. Socotra is a territory of what country?
    a. Russia
    b. Turkey
    c. Indonesia
    d. Yemen

5. In what country is the deepest lake located?
    a. Russia
    b. India
    c. China
    d. None of the above

6. What does the segmented pink line on the land cover map indicate?
    a. International boundary
    b. Disputed boundary
    c. Continental boundary
    d. Territorial boundary

7. Which country has land at the highest elevation?
    a. China
    b. Indonesia
    c. Russia
    d. Turkey

8. The climate in Russia is mainly of what type?
    a. Tundra
    b. Subarctic
    c. Cool summer
    d. Desert

9. Which of the following has land in Asia and Africa?
    a. Russia
    b. Indonesia
    c. Egypt
    d. Oman

10. Which of the following countries receives the highest amount of precipitation?
    a. Malaysia
    b. Uzbekistan
    c. Mongolia
    d. Nepal

11. What is the northernmost city in Asia with a population over 1,000,000?
    a. Sapporo
    b. Tiksi
    c. Yekaterinburg
    d. Omsk

12. How many miles is it from Harbin, China to Changchun, China?
    a. About 150 miles
    b. About 200 miles
    c. About 300 miles
    d. About 400 miles

13. How many countries does the Ganges River flow through?
    a. 1
    b. 2
    c. 3
    d. 4

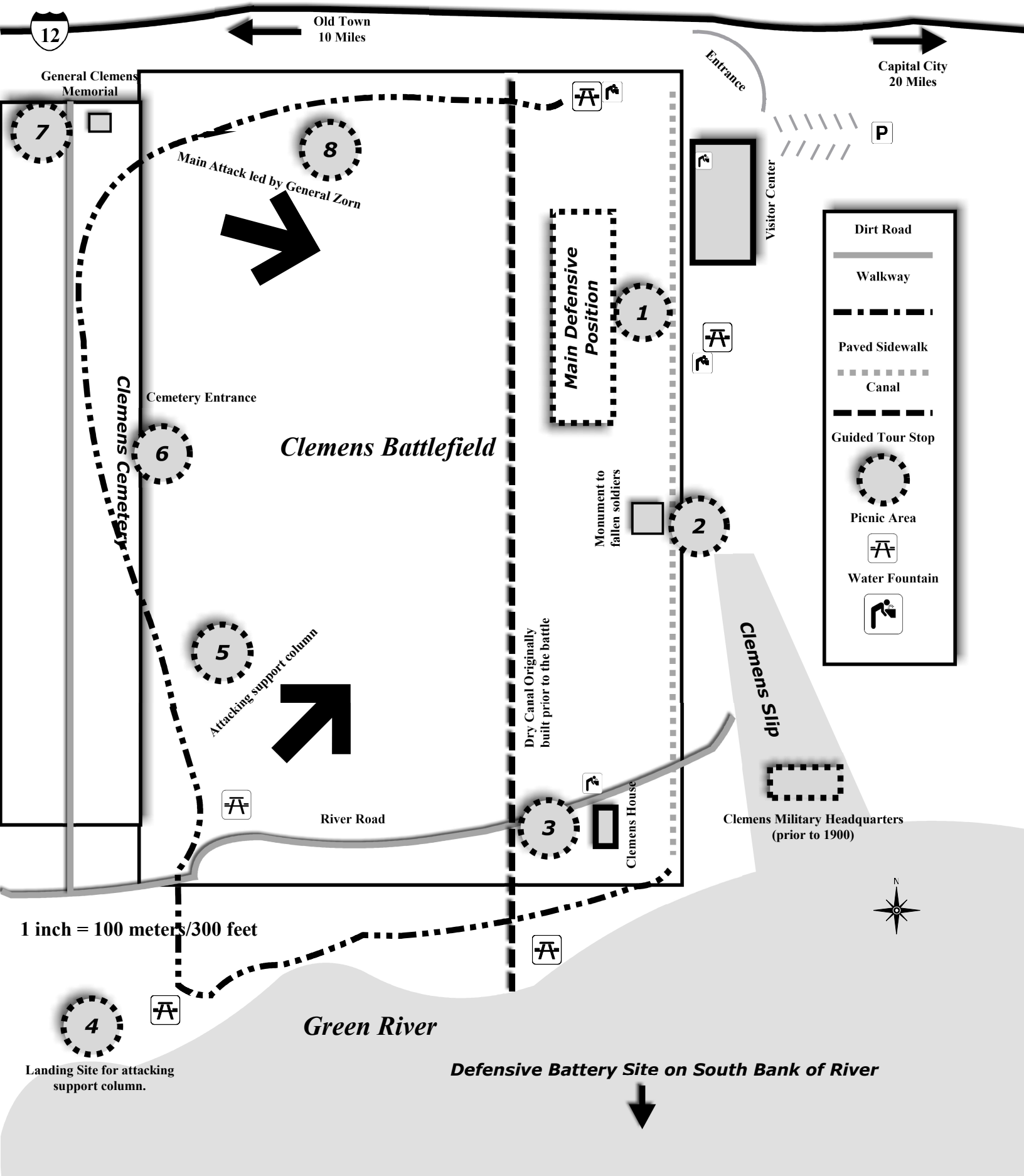
14. Which of the following predominant beliefs include a mix of Buddhism and traditional or folk beliefs?
    a. Japan
    b. Mongolia
    c. Thailand
    d. Indonesia

15. Where is the Bay of Bengal located?
    a. West of the Philippines
    b. North of Japan
    c. South of Sri Lanka
    d. East of India

Clemens Battlefield Historical Site

Open Monday through Saturday 8a.m to 8.p.m

Guided Tours Hourly: 9a.m. to 4p.m.



Clemens Battlefield Historical Site

16. How far is it from the parking lot to the General Clemens Memorial?
    a. About 1,000 feet
    b. About 1,500 feet
    c. About 2,000 feet
    d. About 3,000 feet

17. How many water fountains are located to picnic areas?
    a. 0
    b. 2
    c. 4
    d. 6

18. What does the solid grey line represent?
    a. Dirt road
    b. Walkway
    c. Paved sidewalk
    d. Canal

19. The attacking support column landed where on the map?
    a. Southeast
    b. Southwest
    c. Northeast
    d. Northwest

20. How many guided tour stops are north of the cemetery entrance?
    a. 0
    b. 2
    c. 3
    d. 5

21. How many times does the walkway cross River Road?
    a. 0
    b. 1
    c. 2
    d. 3

22. How many guided tours are there daily?
    a. 12
    b. 10
    c. 8
    d. 6

23. What information do the large black arrows give?
    a. Direction of attack
    b. Size of attacking force
    c. Direction of the tour
    d. None of the above

24. How many memorials to individuals are located inside the cemetery?
    a. 0
    b. 1
    c. 2
    d. 3

25. Who led the main attack on the defensive position?
    a. General Zorn
    b. General Clemens
    c. General Green
    d. Not indicated

TRUE/FALSE

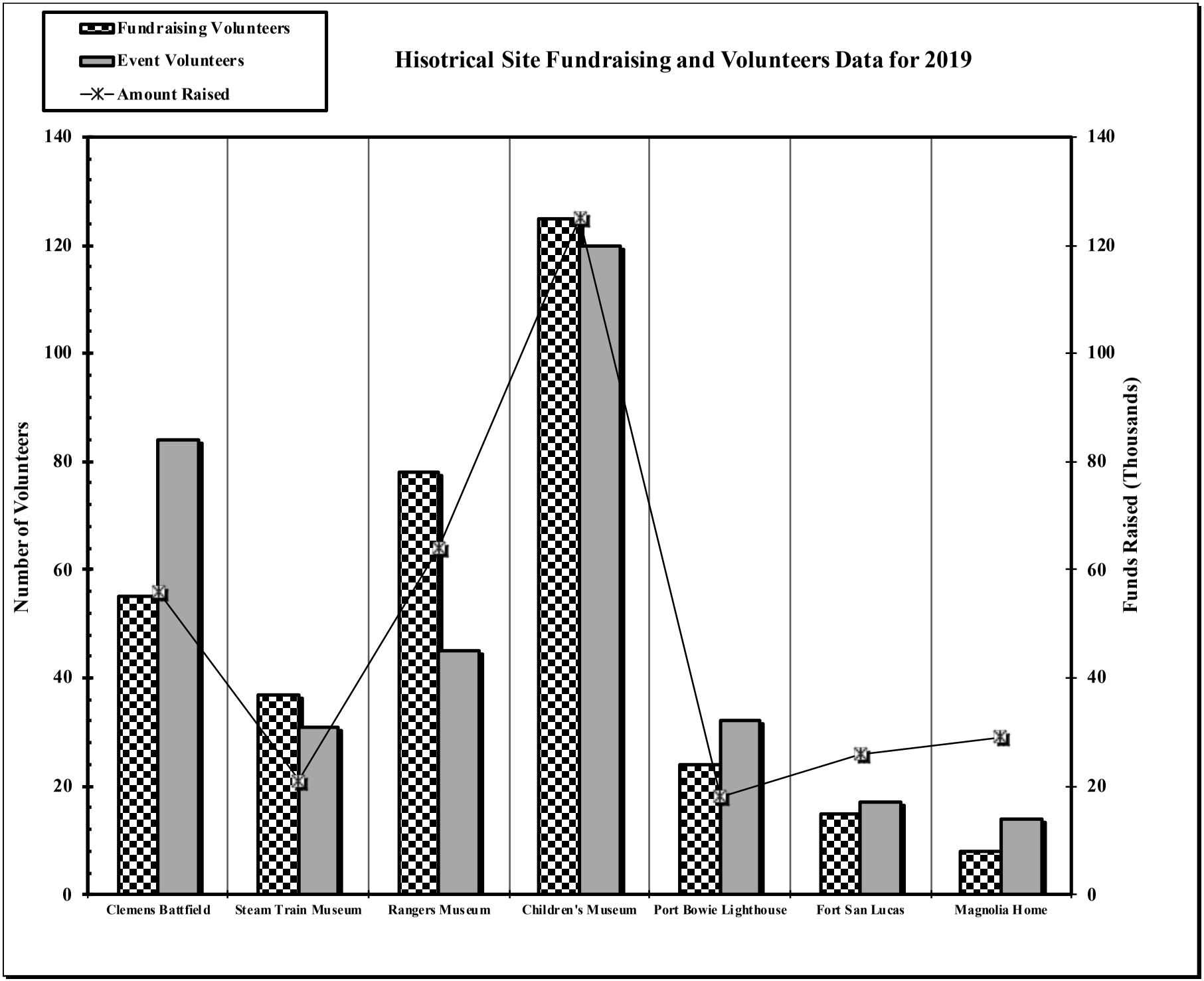
26. The site is located 10 miles west of Capital City.

27. The slip was created sometime after the battle.

28. The map only shows the north side of the river.

29. If the tour went counterclockwise, you would reach Clemens House before Monument to fallen soldiers.

30. The site is open to visitors every day.


Fundraising Volunteers
Event Volunteers
Amount Raised
Hisotrical Site Fundraising and Volunteers Data for 2019
Number of Volunteers
Funds Raised (Thousands)
0
20
40
60
80
100
120
140
Clemens Battfield
Steam Train Museum
Rangers Museum
Children's Museum
Port Bowie Lighthouse
Fort San Lucas
Magnolia Home

Historical Site Fundraising and Volunteer Data

31. How many historical sites are represented?
    a. 1
    b. 5
    c. 7
    d. 14

32. What does the line represent?
    a. Amount raised for the year
    b. Amount raised per event
    c. Number of volunteers by type.
    d. Total number of volunteers.

33. What span of time is covered by the chart?
    a. One month
    b. One year
    c. Seven years
    d. Not indicated

34. Which site had the fewest number of fundraising volunteers?
    a. Clemens Battlefield
    b. Steam Train Museum
    c. Rangers Museum
    d. Children's Museum

35. How many categories of volunteers are shown on the chart?
    a. 2
    b. 5
    c. 10
    d. 15

36. How many sites raised more than the Clemens Battlefield site?
    a. 0
    b. 1
    c. 2
    d. 3

37. Which site had the most volunteers in total?
    a. Clemens Battlefield
    b. Steam Train Museum
    c. Ranger's Museum
    d. Children's Museum

38. What does the solid bar represent?
    a. They year
    b. Total amount raised
    c. Fundraising volunteers
    d. Event volunteers

39. How many sites had more event volunteers than fundraising volunteers?
    a. 1
    b. 2
    c. 4
    d. 5

40. What does the Y axis on the right represent?
    a. Number of volunteers
    b. Amount of fundraising in dollars
    c. Names of the sites
    d. Types of volunteers

TRUE/FALSE

41. The site with the lowest amount of total volunteers raised the least amount of money.

42. The site with the least amount of fundraising volunteers was Fort San Lucas.

43. There were more Fundraising volunteers than event volunteers.

44. Magnolia House raised over $25,000.

45. More people volunteered for the events at Magnolia House than events at Port Bowie Lighthouse.

North America

46. Dotted black lines on political relief maps represent what?
    a. International boundary
    b. Disputed boundary
    c. State or territorial boundary
    d. City boundary

47. From Columbus, Indiana you can reach Indianapolis by heading north on highway…
    a. I65
    b. I70
    c. I69
    d. I74

48. What is the capital of Canada's Yukon territory?
    a. Regina
    b. Edmonton
    c. Fort Frances
    d. Whitehorse

49. What do the maple leaf icons represent on the political relief maps?
    a. Canadian territorial capital
    b. Canadian country capital
    c. Trans-Canada Highway
    d. Canadian landmark

50. Which of the following territories produces more than $5 billion in mining?
    a. Ontario
    b. New Brunswick
    c. British Columbia
    d. Newfoundland and Labrador

51. What is the predominant type of land use in the western united states?
    a. Urban
    b. Commercial farming
    c. Ranching or herding
    d. Forestry

52. Which of the following has the busiest airport?
    a. Hamilton
    b. Halifax
    c. Edmonton
    d. Toronto

53. What is the dominant land cover type south of the Brooks Range in Alaska?
    a. Needle leaf forest
    b. Semi-desert
    c. Tundra
    d. Glacier

54. A continental boundary runs through what body of water?
    a. Lake Superior
    b. Gulf of Mexico
    c. Bering Strait
    d. Davis Strait

55. Which of these lakes has the lowest elevation?
    a. Great Salt Lake
    b. Pyramid Lake
    c. Lake Okeechobee
    d. Yellowstone Lake

56. Which of the following states has an area of population over 250 per square mile?
    a. Montana
    b. North Dakota
    c. Wyoming
    d. Washington

57. Which of the following states does not have shores on Lake Superior?
    a. Ohio
    b. Wisconsin
    c. Minnesota
    d. Michigan

58. San Jose is the capital of what country?
    a. Mexico
    b. New Mexico
    c. Costa Rica
    d. Cuba

59. Volcanoes can be created when two what slide together?
    a. Mountains
    b. Plates
    c. Islands
    d. Countries

60. Which country occupies the largest area?
    a. Canada
    b. Mexico
    c. Nicaragua
    d. United States

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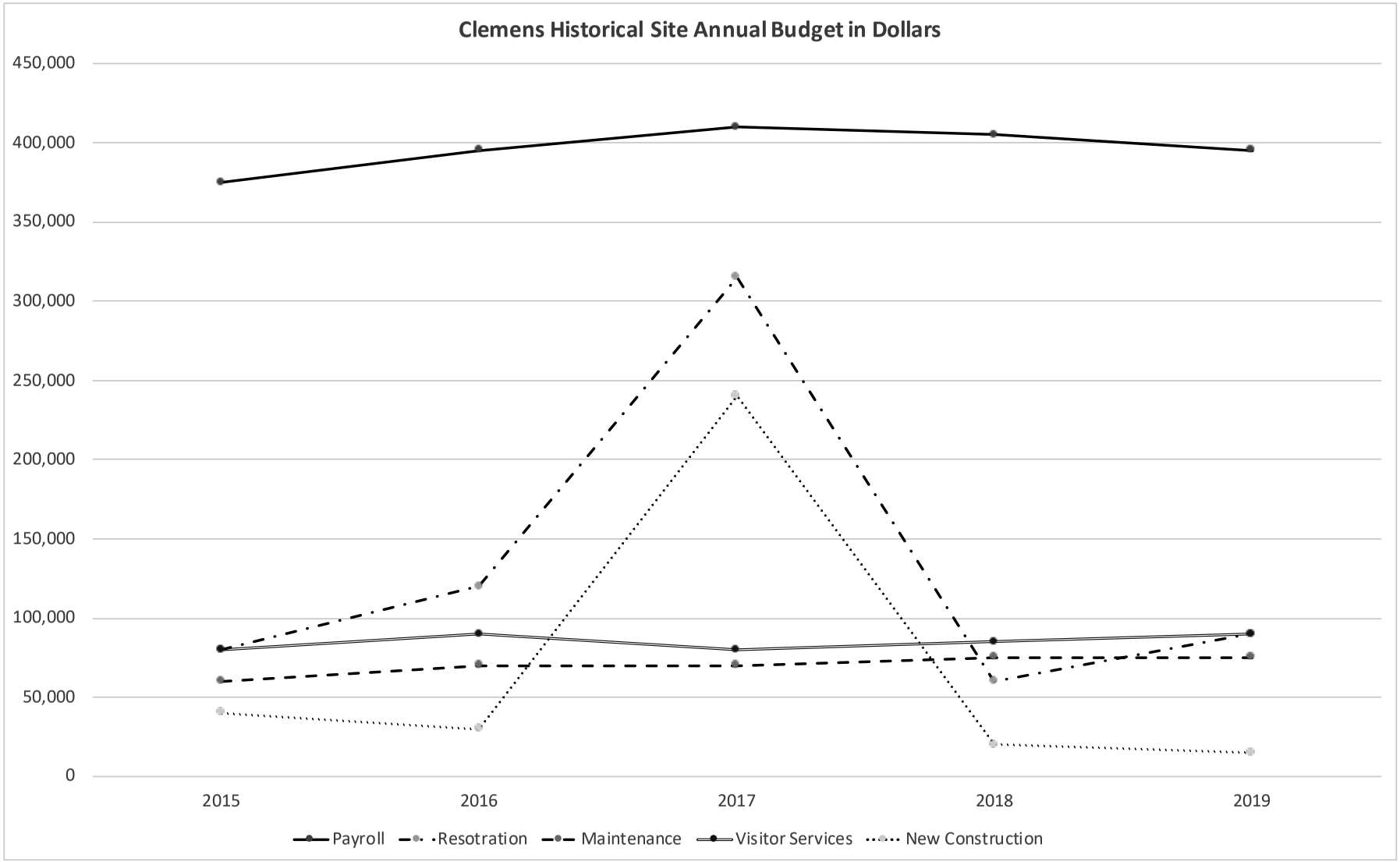

Clemens Historical Site Annual Budget in Dollars
450,000
400,000
350,000
300,000
250,000
200,000
150,000
100,000
50,000
0
2015
2016
2017
2018
2019
Payroll
Resotration
Maintenance
Visitor Services
New Construction

Clemens Historical Site Annual Budget

61. What year did payroll expenses change the most compared to the previous year?
    a. 2015
    b. 2016
    c. 2017
    d. 2018

62. What does the double line represent?
    a. Clemens annual budget
    b. Dollars
    c. A particular year
    d. Visitor services expenses.

63. What year was the least amount budgeted for new construction?
    a. 2016
    b. 2017
    c. 2018
    d. 2019

64. Did attendance increase the year after the newest construction?
    a. Yes
    b. No
    c. Stayed the same
    d. Data not available

65. What year had the highest amount spent on new construction?
    a. 2016
    b. 2017
    c. 2018
    d. 2019

66. What does the X axis represent?
    a. Clemens annual budget
    b. Dollars
    c. A particular year
    d. Visitor services expenses.

67. Which of the following categories had the smallest variation in the years shown on the graph?
    a. Restoration
    b. New Construction
    c. Maintenance
    d. Payroll

68. In how many categories was there never a decrease in budget?
    a. 0
    b. 1
    c. 2
    d. 3

69. How many times did restoration expenditures increase compared to the previous year?
    a. 0
    b. 1
    c. 2
    d. 3

70. In 2015, what category had the least amount of money spent?
    a. Restoration
    b. New Construction
    c. Maintenance
    d. Payroll

TRUE/FALSE

71. Over the time represented on the chart, the most money went towards payroll.

72. 2017 had the highest amount spent in all categories.

73. Payroll is the only category that ever exceeded $300,000.

74. In 2015, payroll expenses were higher than all other categories combined.

75. The chart shows that the site made the most money in 2017.

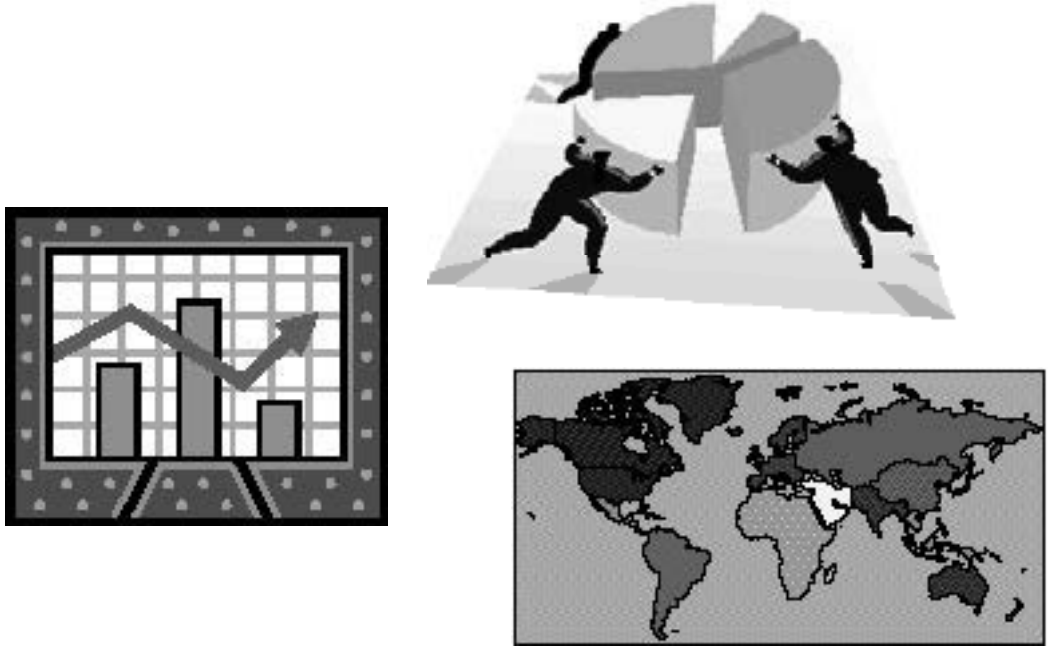
University Interscholastic League
A+ Maps/Graphs/Charts Contest • 2020-2021
7/8 Invitational District
Answer Key

1. C	26. F	51. C
2. B	27. T	52. D
3. D	28. T	53. A
4. D	29. T	54. C
5. A	30. F	55. C
6. B	31. C	56. D
7. A	32. A	57. A
8. B	33. B	58. C
9. C	34. B	59. B
10. A	35. A	60. A
11. C	36. C	61. C
12. A	37. D	62. D
13. B	38. D	63. D
14. A	39. C	64. D
15. D	40. B	65. B
16. B	41. F	66. C
17. B	42. F	67. C
18. A	43. T	68. B
19. B	44. T	69. D
20. C	45. F	70. B
21. B	46. C	71. T
22. C	47. A	72. F
23. A	48. D	73. F
24. B	49. C	74. T
25. A	50. A	75. F

FALL/WINTER DISTRICT 2020-2021

A+ ACADEMICS

University Interscholastic League



Maps, Graphs & Charts

grades 7 & 8

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Europe

1. How much of the Netherlands is below sea level?
    a. About 10%
    b. About 25%
    c. About 60%
    d. About 75%

2. What part of Europe is the least densely populated country located?
    a. Southwest
    b. Northwest
    c. Southwest
    d. Northeast

3. Which of the following is not part of the Caucasus?
    a. Greece
    b. Russia
    c. Georgia
    d. Armenia

4. The Gulf of Lion is off the coast of what country?
    a. Russia
    b. Norway
    c. Croatia
    d. France

5. Which of the following can be found in Ireland?
    a. Coal
    b. Tin
    c. Uranium
    d. Zinc

6. What do the orange lines on the elevation map indicate?
    a. Elevation differences
    b. International boundaries
    c. Continental boundary
    d. Territorial boundary

7. What land feature separates the European section of Russia from Siberia?
    a. Volga River
    b. Ural Mountains
    c. Baltic Sea
    d. Strait of Dover

8. The Oder River forms part of the border of what country?
    a. Poland
    b. Finland
    c. Russia
    d. Belarus

9. Which country is a candidate member of the E.U.?
    a. Russia
    b. Hungary
    c. Slovakia
    d. Turkey

10. How far is it from Tartu, Estonia to Pskov, Russia?
    a. About 75 kilometers
    b. About 125 kilometers
    c. About 200 kilometers
    d. About 150 miles

11. Where can wetlands be found?
    a. Sicily
    b. Iberian Peninsula
    c. Caspian Depression
    d. Sardinia

12. Which country gets most of its electric from nuclear power?
    a. France
    b. Germany
    c. Norway
    d. Poland

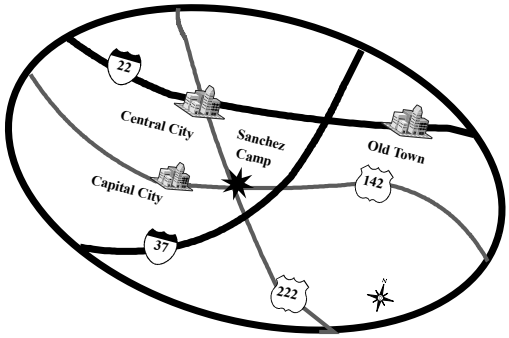
13. The Balearic Islands are part of what country?
    a. Ukraine
    b. Finland
    c. Spain
    d. Bulgaria

14. Canals can be found just north of what country capital?
    a. Kiev, Ukraine
    b. Essen, Germany
    c. Oslo, Norway
    d. Moscow, Russia

15. Most Russian land is in what continent?
    a. Europe
    b. Asia
    c. Africa
    d. The Arctic

SANCHEZ SPORTS AND ACTIVITY CAMP

Open May through September
Overnight and Day-camp options
Daily buses routes from
Central City and Capital City



Interstate Hwy.
U.S. Route
1 inch = 10 miles

Baseball Diamond

Outdoor Basketball Courts

Track

Tennis Courts

Olympic Pool

Male Dorms

Dining Hall and Activity Center

Female Dorms

Ropes Course

Archery Range

Horse Riding Path

Paved Walkway

Camp Office

Horse Stable

Beach Volleyball

Sandy Beach

Blue Lake

N

P

Bus Drop-off/Pick-Up

Fishing Area

Swimming Area

Horse Riding Trail

Picnic Area

Paved Walkway

Path

Swimming Area

Horse Riding Path

Sanchez Sports and Activity Camp Map

16. How far is it from Central City to the sports camp?
    a. About 1 mile
    b. About 5 miles
    c. About 10 miles
    d. About 20 miles

17. What does the line that leads from the Dining Hall to the Ropes Course indicate?
    a. U.S. Route
    b. Interstate Highway
    c. Path
    d. Paved walkway

18. What activity is located the furthest west?
    a. Ropes course
    b. Tennis courts
    c. Track
    d. Archery

19. What is the quickest route to the camp from Capital City?
    a. Head south on U.S. Route222
    b. Head East on Interstate Hwy. 142
    c. Head West on Interstate Hwy. 142t
    d. Head East on U.S. Route 142

20. How many picnic areas are north of the pool?
    a. 0
    b. 2
    c. 4
    d. 8

21. The Horse Riding Trail crosses which of the following?
    a. Interstate Highway
    b. Swimming area
    c. Paved Walkway
    d. Path

22. How many cities have daily bus routes?
    a. 0
    b. 1
    c. 2
    d. 3

23. What area of the map is the parking lot located?
    a. Southwest
    b. Northwest
    c. Northeast
    d. Southwest

24. How far is it from Sandy Beach to the Baseball Field?
    a. About 70 yards
    b. About 700 yards
    c. About 7 miles
    d. Scale not indicated

25. How many months is the camp closed?
    a. 5
    b. 7
    c. 9
    d. 12

TRUE/FALSE

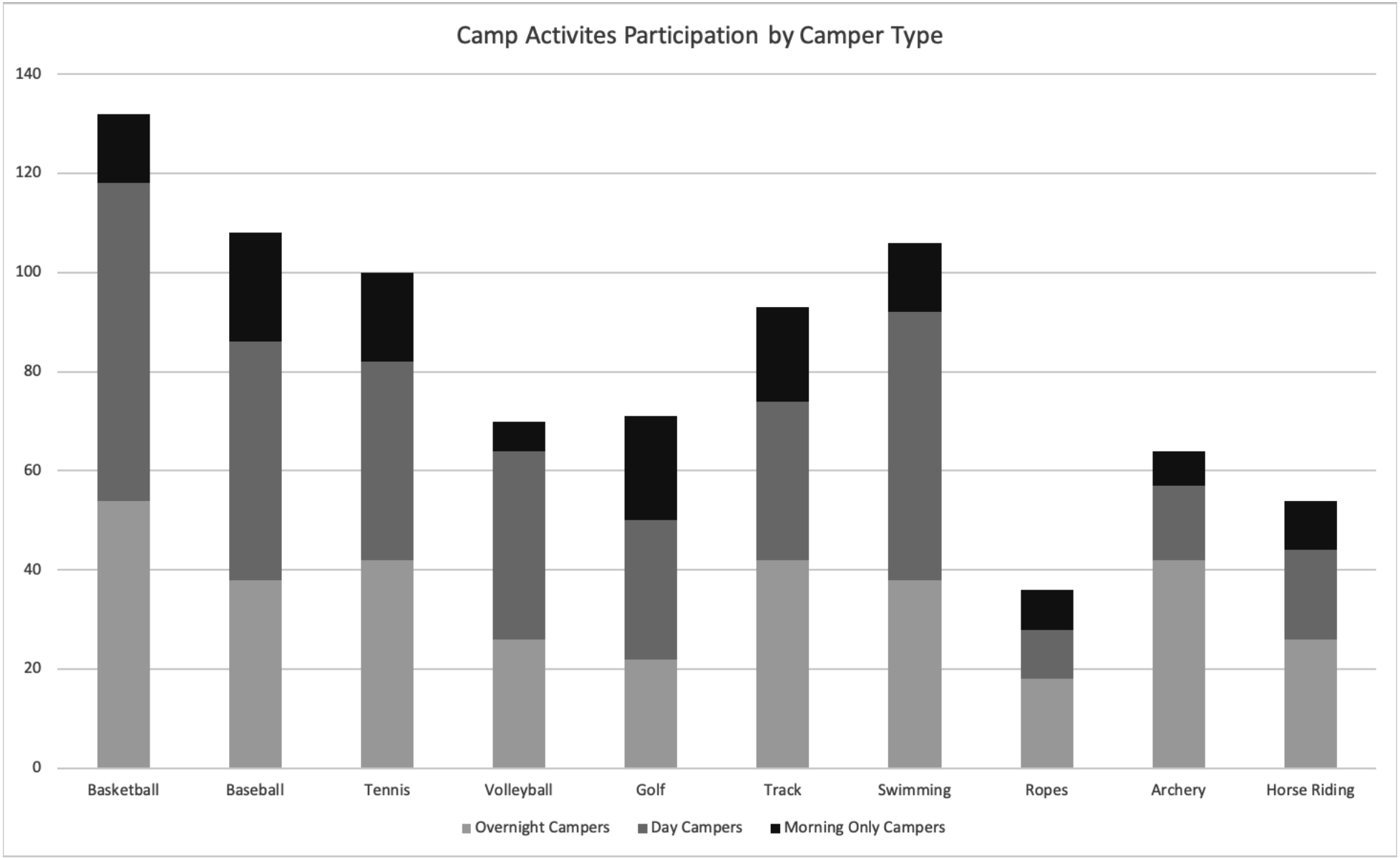
26. The swimming area in the lake sits between two fishing areas.

27. The female dorms are just north of the Dining Hall and Activity Center.

28. The camp is located at the junction of Interstate Hwy. 222 and Interstate Hwy. 142.

29. The Archery Range and Ropes Course are connected by a paved walkway.

30. The Horse Riding Path circles around every activity center.


Camp Activites Participation by Camper Type
140
120
100
80
60
40
20
0
Basketball
Baseball
Tennis
Volleyball
Golf
Track
Swimming
Ropes
Archery
Horse Riding
Overnight Campers
Day Campers
Morning Only Campers

Camp Activities Participation by Camper Type

31. What time span is covered by the chart?
    a. One month
    b. One summer
    c. One year
    d. Not indicated

32. What does each column represent?
    a. A single year
    b. A type of camper
    c. An activity
    d. None of the above

33. What activity had the highest overall participation?
    a. Basketball
    b. Swimming
    c. Archery
    d. Baseball

34. How many categories of campers are represented?
    a. 10
    b. 6
    c. 3
    d. 1

35. The highest amount of Ropes participants were what kind of camper?
    a. Overnight
    b. Day Campers
    c. Morning only
    d. Afternoon Only

36. Which activity had the fewest participants for morning only campers?
    a. Ropes
    b. Horse Riding
    c. Volleyball
    d. Swimming

37. How many activities had the highest number of participants come from morning only campers?
    a. 0
    b. 1
    c. 2
    d. 3

38. What does the Y axis represent?
    a. Year
    b. Activity
    c. Number of participants
    d. Type of participant

39. How many activities had total participation numbers over 100?
    a. 0
    b. 1
    c. 2
    d. 3

40. What activity has the least amount of variation in participation among the different camper types?
    a. Ropes
    b. Golf
    c. Volleyball
    d. Archery

TRUE/FALSE

41. The majority of basketball participants were day campers.

42. The Ropes activity had the fewest number of participants for each of the camper types.

43. The lowest participation for day campers was in archery.

44. Moring only campers had the lowest overall numbers.

45. The highest single source of participation came from basketball day campers.

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Australia and Oceania

46. What is the elevation level of Lake Eyre?
    a. Below sea level
    b. 0 to 150 meters
    c. 150 to 300 meters
    d. 500 to 1,000 meters

47. What is the world's oldest continuous culture?
    a. Aborigines
    b. Melanesians
    c. Micronesians
    d. Polynesians

48. Which city is closest to the Tropic of Cancer?
    a. Nanning, China
    b. Changsha, China
    c. Macau, China
    d. Guangzhou, China

49. In Australia, which of the following economic uses of land accounts for the most area?
    a. Urban
    b. Commercial Farming
    c. Subsistence farming
    d. Ranching or herding

50. Tarawa is the capital of what country?
    a. Solomon Islands
    b. Kiribati
    c. Palau
    d. Indonesia

51. Which of the following is a day behind the others?
    a. French Polynesia
    b. Solomon Islands
    c. Palau
    d. Cambodia

52. What do the solid colored lines on the political relief map represent?
    a. Continental boundaries
    b. State/Territory boundaries
    c. Official international boundaries
    d. Which islands have the same government

53. Which Australian state has the largest area
    a. South Australia
    b. Western Australia
    c. Northern Territory
    d. Victoria

54. The Australian Alps are part of what land feature?
    a. Great Australian Bight
    b. Western Plateau
    c. Great Dividing Range
    d. Macdonnell Ranges

55. What is the coldest month in Australia?
    a. January
    b. February
    c. July
    d. December

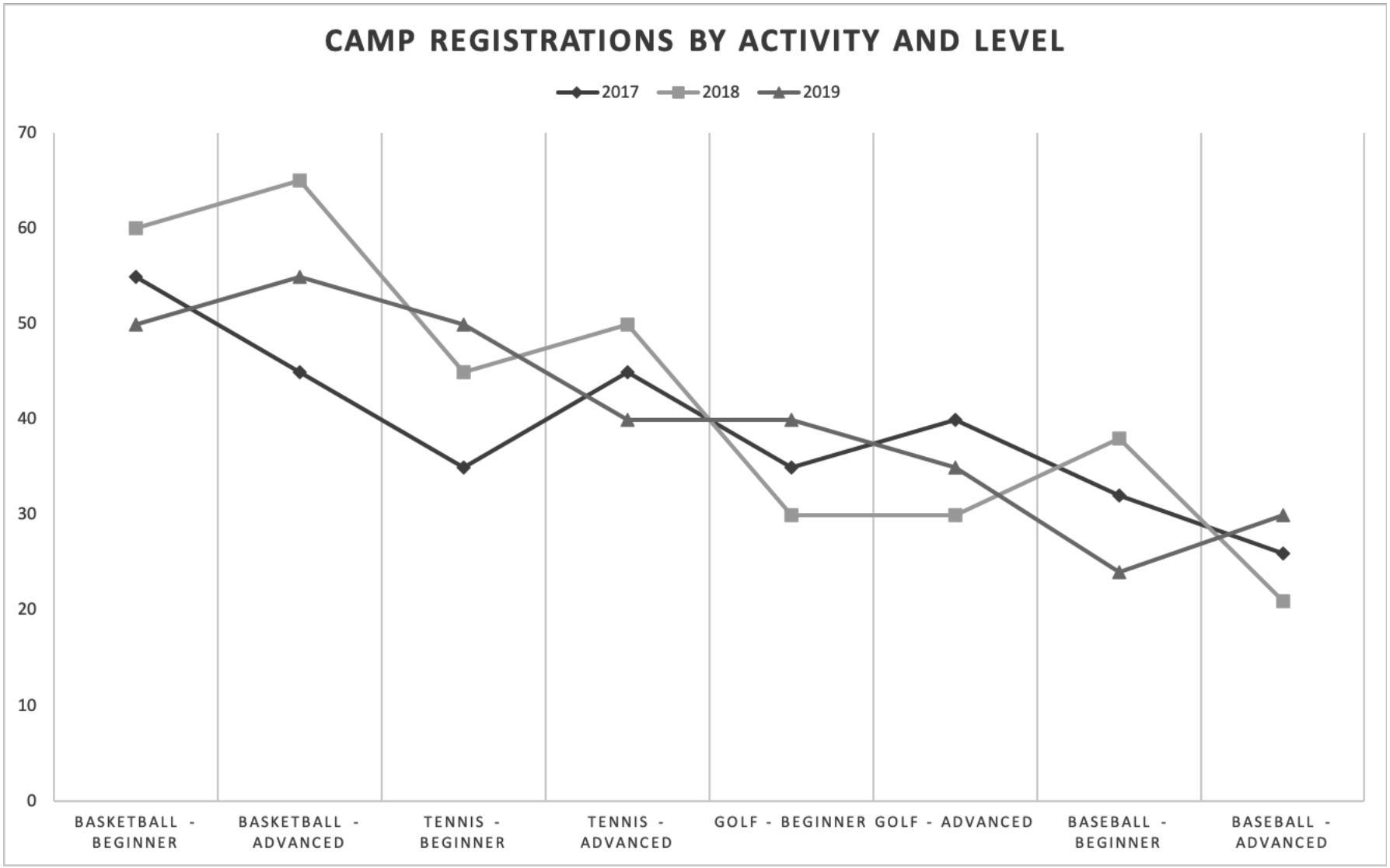
56. The ethnic composition in New Zealand is mainly what?
    a. European
    b. Maori
    c. Asian
    d. Other

57. Which of the following countries has land on two continents?
    a. Australia
    b. Tonga
    c. Thailand
    d. Indonesia

58. What part of Australia gets the most precipitation?
    a. The Outback
    b. The southern coast
    c. The western coast
    d. The eastern coast

59. Which of the following is not a seasonal lake?
    a. Lake Argyle
    b. Lake Barlee
    c. Lake Eyre
    d. Lake Gairdner

60. The western half of New Guinea is part of country?
    a. Australia
    b. Papua New Guinea
    c. Indonesia
    d. China


CAMP REGISTRATIONS BY ACTIVITY AND LEVEL
2017
2018
2019
70
60
50
40
30
20
10
0
BASKETBALL - BEGINNER
BASKETBALL - ADVANCED
TENNIS - BEGINNER
TENNIS - ADVANCED
GOLF - BEGINNER
GOLF - ADVANCED
BASEBALL - BEGINNER
BASEBALL - ADVANCED

Camp Registrations by Activity and Level

61. How many advanced basketball registrations were there in 2016?
    a. 45
    b. 65
    c. 55
    d. Not indicated

62. What year had the most beginner baseball registrations?
    a. 2016
    b. 2017
    c. 2018
    d. 2019

63. Which of the following had the highest number of registrations for all years combined?
    a. Golf advanced
    b. Tennis beginner
    c. Baseball beginner
    d. Golf beginner

64. In how many years was the beginner basketball group the largest?
    a. 0
    b. 1
    c. 2
    d. 3

65. What does the line with the triangular points represent?
    a. 2016
    b. 2017
    c. 2018
    d. 2019

66. How many categories saw an increase in registration every year?
    a. 0
    b. 1
    c. 2
    d. 3

67. How many levels for each activity are represented?
    a. 0
    b. 1
    c. 2
    d. 3

68. In how many years were there more beginner golf registrations than advanced golf registrations?
    a. 0
    b. 1
    c. 2
    d. 3

69. Which of the following had a decrease in registrations in 2019 from 2018?
    a. Golf beginner
    b. Baseball beginner
    c. Tennis beginner
    d. Baseball advanced

70. What advanced sport had the lowest registration in 2019?
    a. Basketball
    b. Baseball
    c. Golf
    d. Tennis

TRUE/FALSE

71. There are always more advanced tennis than beginner tennis players.

72. The advanced baseball registrants had the lowest numbers more often than any other category.

73. The three year totals for the advanced golf and beginner golf groups were about the same.

74. 2018 was the best year for the beginner tennis group.

75. 2018 saw higher numbers in more categories than any other year.

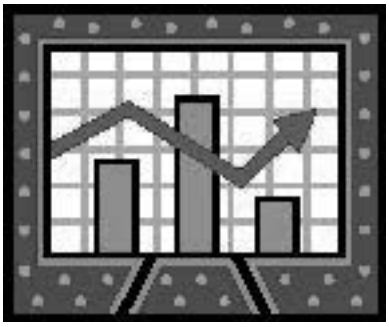
University Interscholastic League
A+ Maps/Graphs/Charts Contest • 2020-2021
7/8 Fall District
Answer Key

1. B	26. T	51. A
2. B	27. T	52. D
3. A	28. F	53. B
4. D	29. F	54. C
5. D	30. F	55. C
6. B	31. D	56. A
7. B	32. C	57. D
8. A	33. A	58. D
9. D	34. C	59. A
10. B	35. A	60. C
11. C	36. C	61. D
12. A	37. A	62. C
13. C	38. C	63. B
14. D	39. D	64. B
15. B	40. B	65. D
16. C	41. T	66. B
17. C	42. F	67. C
18. A	43. F	68. B
19. D	44. T	69. B
20. C	45. T	70. B
21. C	46. A	71. F
22. C	47. A	72. T
23. C	48. D	73. T
24. D	49. D	74. F
25. B	50. B	75. T

SPRING DISTRICT 2020-2021

A+ ACADEMICS

University Interscholastic League



Maps, Graphs & Charts

grades 7 & 8

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South America

1. The Serra do Espinhaco runs through what country?
    a. Brazil
    b. Colombia
    c. Uruguay
    d. Bolivia

2. Tundra is not found in which of the following countries?
    a. Argentina
    b. Bolivia
    c. Chile
    d. Suriname

3. One inch equals the least amount of miles on which of the following maps?
    a. Political Relief Map
    b. Land Cover Map
    c. Elevation Map
    d. All are the same scale

4. What is the predominate land use in northern Chile?
    a. Commercial farming
    b. Subsistence farming
    c. Forestry
    d. No widespread use

5. How far is it from Manaus, Brazil to Boa Vista, Brazil?
    a. About 400 kilometers
    b. About 500 kilometers
    c. About 200 miles
    d. About 600 miles

6. Which country has a higher birth rate than the world birth rate average?
    a. Bolivia
    b. Brazil
    c. Peru
    d. None of the above

7. Which country is the most densely populated?
    a. Brazil
    b. Guyana
    c. Ecuador
    d. Argentina

8. The Iguazu Falls are located on the border of what country?
    a. Argentina
    b. Guyana
    c. Venezuela
    d. Costa Rica

9. The capital of Argentina lies at what elevation?
    a. 0 to 500 feet
    b. 500 to 1,000 feet
    c. 1,00 to 2,000 feet
    d. Over 20,000 feet

10. What percentage of modern medicines were developed from rain forest pants?
    a. About 10 percent
    b. About 15 percent
    c. About 20 percent
    d. About 25 percent

11. The Galapagos Islands are a territory of what country?
    a. Brazil
    b. France
    c. England
    d. Ecuador

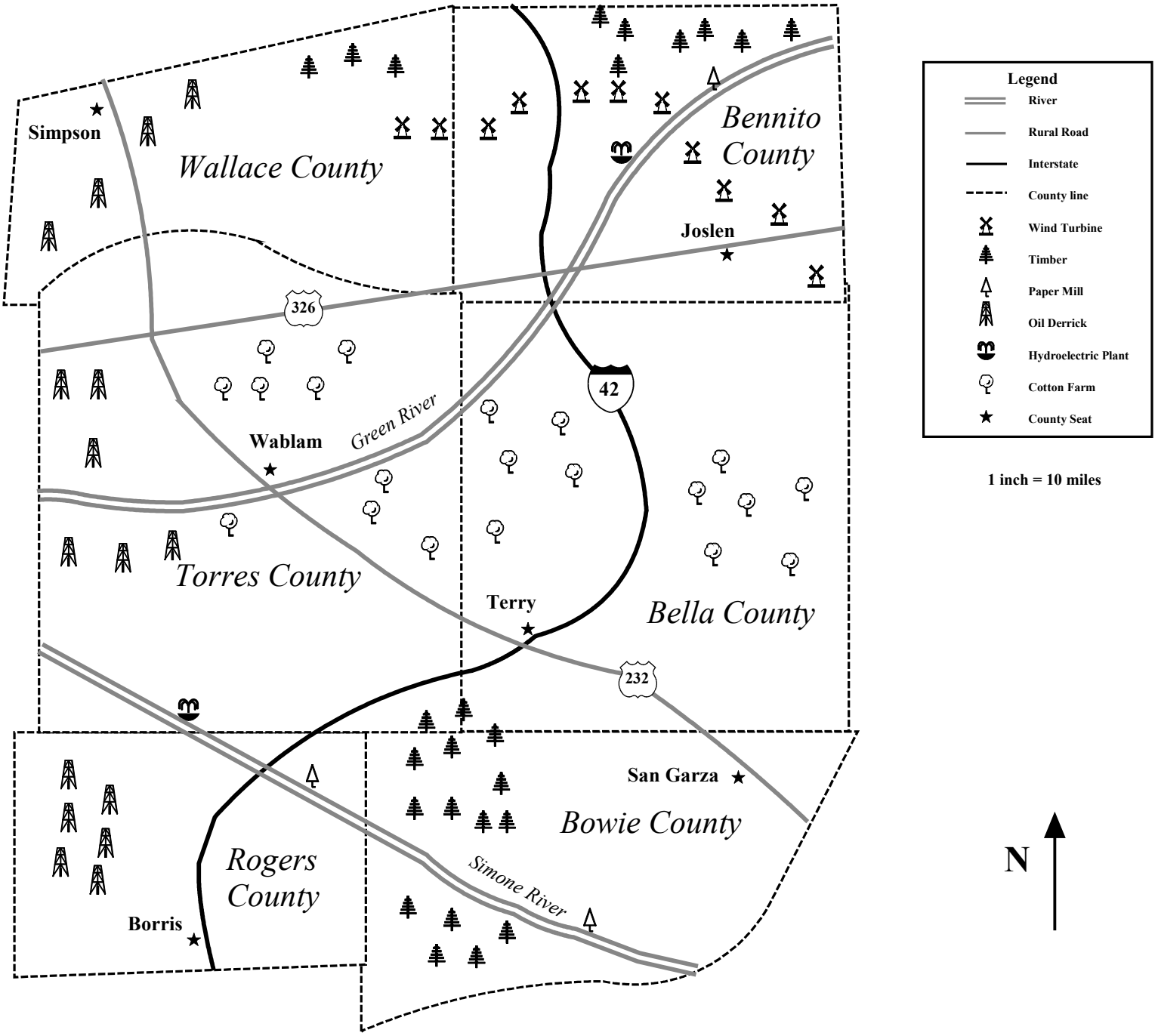
12. Which Columbian city has the smallest population?
    a. Bello
    b. Cartagena
    c. Iquitos
    d. Cali

13. The Mouth of the Amazon is part of what body of water?
    a. The Caribbean Sea
    b. Scotia Sea
    c. Pacific Ocean
    d. Atlantic Ocean

14. Which country has the highest percentage of descendants of indigenous South Americans?
    a. Brazil
    b. Columbia
    c. Bolivia
    d. Chile

15. Which energy resource can be found in Suriname?
    a. Aluminum
    b. Copper
    c. Gold
    d. Iron

Southwestern Counties Natural Resource Map



Natural Resources Map

16. What do the double gray lines represent?
    a. Interstates
    b. Rural roads
    c. County Lines
    d. Rivers

17. How far is it from the Torres county seat to the Bowie county seat?
    a. About 10 miles
    b. About 20 miles
    c. About 30 miles
    d. About 40 miles

18. What resource can be found in the southwestern corner of the map?
    a. Timber
    b. Oil
    c. Cotton
    d. Wind Turbine

19. What is the quickest route to get from San Garza to Wablam?
    a. Head south on Rural Route 232
    b. Head south on Interstate 232
    c. Head north on Rural Route 232
    d. Head north on Interstate 232

20. How many hydroelectric plants are located on the Green River?
    a. 0
    b. 1
    c. 2
    d. 3

21. Which of the following can be found in the western counties?
    a. Cotton
    b. Oil
    c. Wind Turbines
    d. Paper Mills

22. Which rural road runs mostly east and west?
    a. 42
    b. 232
    c. 326
    d. None of the above

23. How many counties on the map are connected by an interstate highway?
    a. 0
    b. 2
    c. 4
    d. 6

24. How many county seats are located along Rural Road 326?
    a. 0
    b. 1
    c. 2
    d. 3

25. How many county seats are located near a junction of an interstate and rural road?
    a. 0
    b. 1
    c. 2
    d. 3

TRUE/FALSE

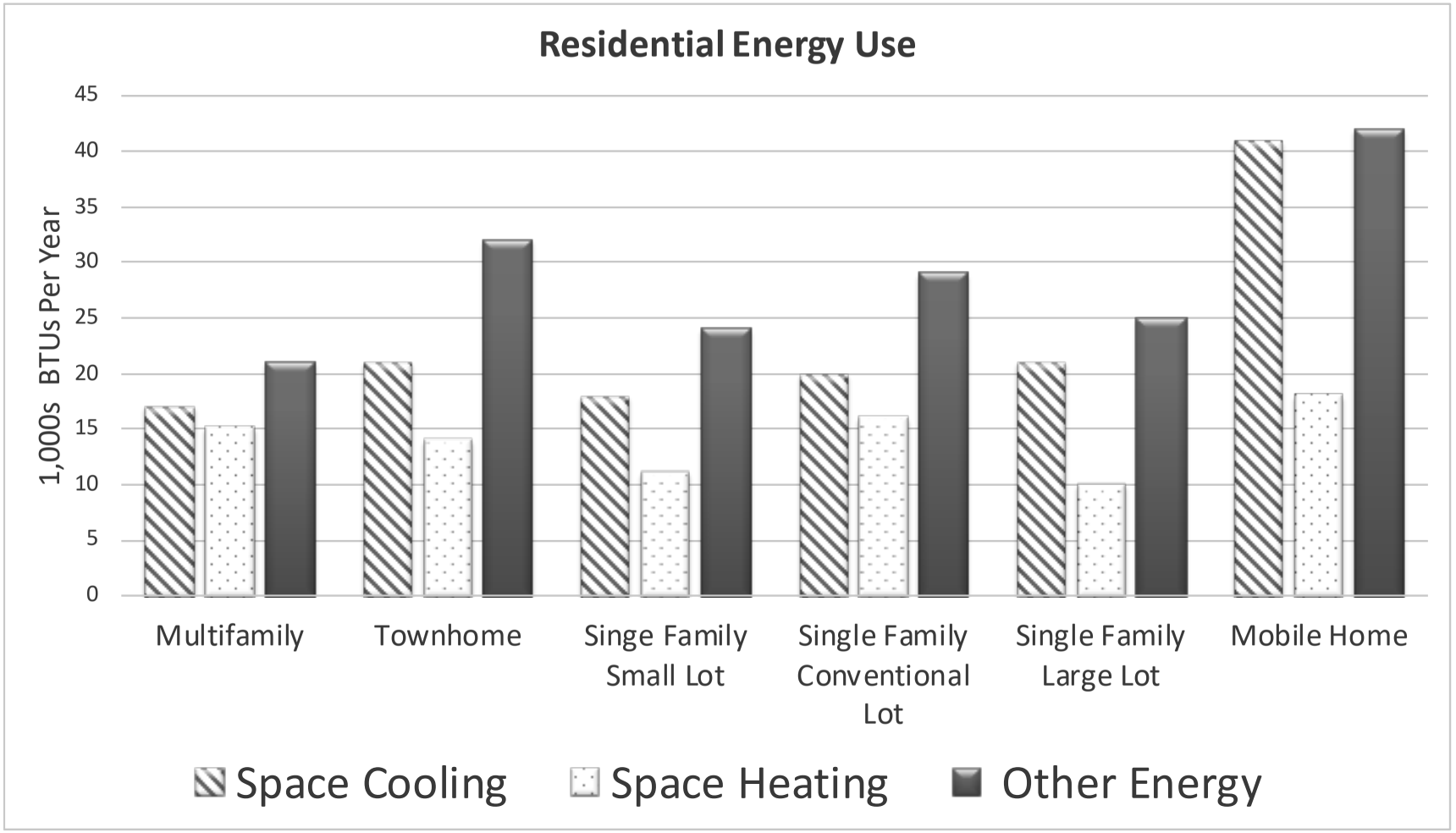
26. There are more oil derricks in Torres county than cotton farms.

27. Most wind turbines are located on the maps north western county.

28. Rogers is the county seat located the furthest south.

29. All paper mills are located along the Simone River.

30. Every highway or rural road on the map crosses the Green River.


Residential Energy Use
1,000s BTUs Per Year
45
40
35
30
25
20
15
10
5
0
Multifamily
Townhome
Singe Family Small Lot
Single Family Conventional Lot
Single Family Large Lot
Mobile Home
Space Cooling
Space Heating
Other Energy

Residential Energy Use

31. How many types of users are represented on the graph?
    a. One
    b. Three
    c. Six
    d. Eight

32. What does the column with the dots represent?
    a. Townhome
    b. Mobile Home
    c. Space Heating
    d. Space Cooling

33. What type of use always uses the most energy?
    a. Space Cooling
    b. Space Heating
    c. Other Energy
    d. Data not available

34. What do the numbers on the Y axis represent?
    a. Number of users
    b. Number of users in a building type
    c. Hundreds of BTUs per year
    d. Thousands of BTUs per year

35. In how many categories did mobile home users average the most usage?
    a. 0
    b. 1
    c. 2
    d. 3

36. Which of the following had the lowest usage?
    a. Mobile home, space heating
    b. Townhome, space cooling
    c. Multifamily, other energy
    d. Single family large lot, space heating

37. What type of residence had the lowest combined energy use?
    a. Multifamily
    b. Townhome
    c. Single Family, large Lot
    d. Single Family, conventional lot

38. In how many categories was single family, large lot energy usage lower than single family, small lot usage?
    a. 0
    b. 1
    c. 2
    d. 3

39. The graph presents data for what span of time?
    a. One week
    b. One month
    c. One year
    d. Information not available

40. What type of residence has the least amount of variation in energy type usage?
    a. Multifamily
    b. Single family, conventional lot
    c. Townhome
    d. Mobile home

TRUE/FALSE

41. Mobile homes use more than twice as much energy in the "other energy" category than any other residential type.

42. The graph indicates how many individuals are counted within each residential type.

43. Space heating uses less energy than space cooling across all residential types.

44. Overall energy usage for multifamily is the same as single family, small lot usage.

45. Space cooling exceed 15,000 BTUs per week in every category.

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Africa

46. The coastline of which of the following countries has the lowest population density?
    a. Algeria
    b. Morocco
    c. Namibia
    d. South Africa

47. Antongila Bay is on the east coast of what country?
    a. Somalia
    b. Egypt
    c. Madagascar
    d. Tanzania

48. What does the white box on the elevation map show?
    a. The equator
    b. The area in the cross section
    c. A disputed border
    d. A mountain range

49. The capital of what country is located just east of the Prime Meridian?
    a. Togo
    b. Ghana
    c. Mali
    d. Chad

50. Tropical rain forest can be found in what country?
    a. Libya
    b. Somalia
    c. Eritrea
    d. Liberia

51. Except for its coastline, what country is entirely surrounded by one other country?
    a. Nigeria
    b. Gambia
    c. Cameroon
    d. Gabon

52. What lake was formed by the rift in the Great Rift Valley?
    a. Lake Nyasa
    b. Lake Volta
    c. Kainji Lake
    d. Lake Mai-Ndombe

53. Where are the Makgadikgadi Salt Pans located?
    a. Ethiopia
    b. Zimbabwe
    c. Namibia
    d. Botswana

54. Algeria imports the most from where?
    a. China
    b. European Union
    c. United States
    d. Brazil

55. The people of Africa speak more than _____ languages.
    a. 100
    b. 400
    c. 800
    d. 1000

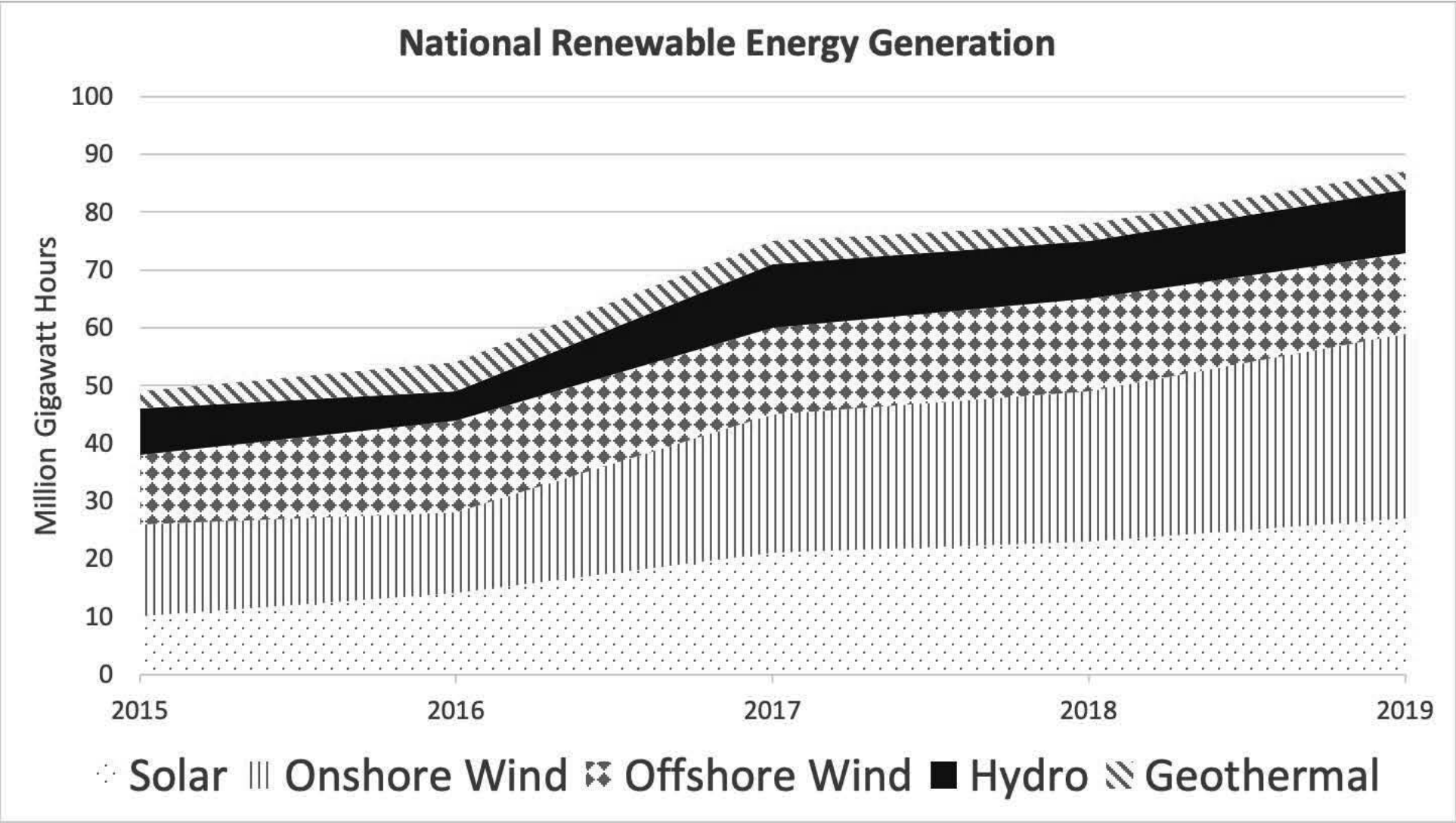
56. What is the longest mountain range on the continent?
    a. Ethiopian Highlands
    b. Atlas Mountains
    c. Drakensberg
    d. Semien Mountains

57. What is the average annual range of precipitation in Egypt?
    a. 0 to 10 inches
    b. 10 to 20 inches
    c. 40 to 80 inches
    d. Over 80 inches

58. What do the white dots in the Strait of Gilbraltar represent?
    a. Disputed boundary
    b. International boundary
    c. Continental boundary
    d. Canal

59. What country capital is the furthest south?
    a. Cape Town
    b. Maputo
    c. Gaborone
    d. Johannesburg

60. Which country is transcontinental?
    a. Madagascar
    b. Algeria
    c. Egypt
    d. Namibia


National Renewable Energy Generation
Million Gigawatt Hours
100
90
80
70
60
50
40
30
20
10
0
2015
2016
2017
2018
2019
Solar
Onshore Wind
Offshore Wind
Hydro
Geothermal

Renewable Energy Generation

61. What span of time does the graph cover?
    a. 5 months
    b. 5 years
    c. 5 decades
    d. Not indicated

62. What was the first year total renewable energy generation rose about 70 gigawatts?
    a. 2016
    b. 2017
    c. 2018
    d. 2019

63. How many types of renewable energy are represented on the graph?
    a. 0
    b. 2
    c. 4
    d. 5

64. What year did solar generate the least amount?
    a. 2015
    b. 2016
    c. 2018
    d. 2019

65. How is energy production measured on the graph?
    a. Megawatt hours
    b. Thousands of megawatt hour
    c. Gigawatt hours
    d. Millions of gigawatt hours

66. In 2017, what method of renewable energy produced the most energy?
    a. Solar
    b. Onshore wind
    c. Offshore wind
    d. Hydro

67. In what year did energy generation from hydro jump the most compared to the previous year?
    a. 2015
    b. 2016
    c. 2017
    d. 2018

68. How many type(s) of renewable energy had greater production in 2016 than 2018?
    a. 0
    b. 1
    c. 2
    d. 3

69. What information is presented on the x-axis?
    a. The title of the graph
    b. The million gigawatt hours
    c. The year
    d. The type of renewable energy

70. What year does the darkest portion of the graph represent?
    a. 2015
    b. 2017
    c. 2019
    d. None of the above

TRUE/FALSE

71. Energy production for all types combined increased every year.

72. Solar produced more energy than any other type twice.

73. Solar is the only type of production that increased every year.

74. The highest level of production for hydro was in 2017.

75. Geothermal production had the least amount of variation between its highest and lowest years.

University Interscholastic League
A+ Maps/Graphs/Charts Contest • 2020-2021
7/8 Spring District
Answer Key

1. A	26. F	51. B
2. D	27. F	52. A
3. C	28. F	53. D
4. D	29. F	54. B
5. B	30. T	55. D
6. A	31. C	56. B
7. C	32. C	57. A
8. A	33. C	58. C
9. A	34. D	59. A
10. D	35. D	60. C
11. D	36. D	61. B
12. A	37. A	62. B
13. D	38. B	63. D
14. C	39. C	64. A
15. A	40. A	65. D
16. D	41. F	66. B
17. D	42. F	67. C
18. B	43. T	68. A
19. C	44. T	69. C
20. B	45. F	70. D
21. B	46. C	71. T
22. C	47. C	72. F
23. C	48. B	73. T
24. B	49. A	74. T
25. B	50. D	75. T

CONTESTANT NUMBER:

FOR GRADER USE ONLY Score Test Below: _____out of 250. Initials_____ _____out of 250. Initials_____ **Papers contending to place:** _____out of 250. Initials_____	**University Interscholastic League** **A+ Mathematics Contest • Answer Sheet**

Write your contestant number in the upper right corner, and circle your grade below.

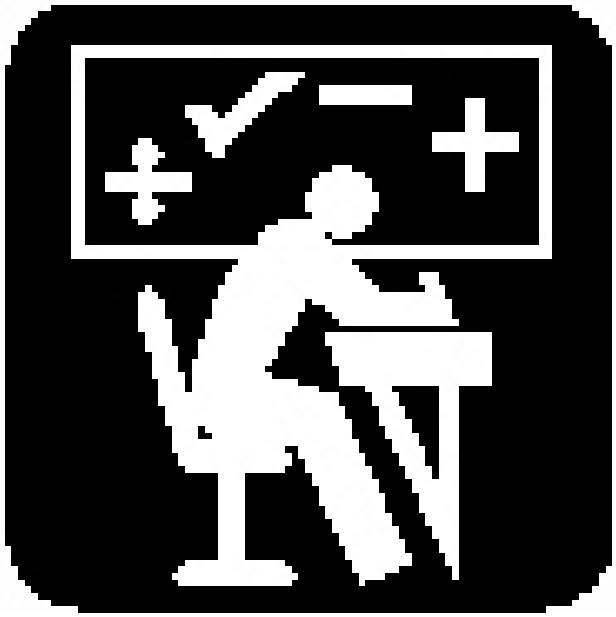
Circle Grade Level: 6 7 8

1.	A	B	C	D	E	26.	A	B	C	D	E
2.	A	B	C	D	E	27.	A	B	C	D	E
3.	A	B	C	D	E	28.	A	B	C	D	E
4.	A	B	C	D	E	29.	A	B	C	D	E
5.	A	B	C	D	E	30.	A	B	C	D	E
6.	A	B	C	D	E	31.	A	B	C	D	E
7.	A	B	C	D	E	32.	A	B	C	D	E
8.	A	B	C	D	E	33.	A	B	C	D	E
9.	A	B	C	D	E	34.	A	B	C	D	E
10.	A	B	C	D	E	35.	A	B	C	D	E
11.	A	B	C	D	E	36.	A	B	C	D	E
12.	A	B	C	D	E	37.	A	B	C	D	E
13.	A	B	C	D	E	38.	A	B	C	D	E
14.	A	B	C	D	E	39.	A	B	C	D	E
15.	A	B	C	D	E	40.	A	B	C	D	E
16.	A	B	C	D	E	41.	A	B	C	D	E
17.	A	B	C	D	E	42.	A	B	C	D	E
18.	A	B	C	D	E	43.	A	B	C	D	E
19.	A	B	C	D	E	44.	A	B	C	D	E
20.	A	B	C	D	E	45.	A	B	C	D	E
21.	A	B	C	D	E	46.	A	B	C	D	E
22.	A	B	C	D	E	47.	A	B	C	D	E
23.	A	B	C	D	E	48.	A	B	C	D	E
24.	A	B	C	D	E	49.	A	B	C	D	E
25.	A	B	C	D	E	50.	A	B	C	D	E

INVITATIONAL 2020-2021

A+ ACADEMICS

University Interscholastic League



Mathematics

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2020 – 2021 University Interscholastic League JH/MS Mathematics Contest A

(1) Evaluate: $2^4 \div 2^3 \times 2^2 \div 2^1 \times 2^0 \div 2^{-1}$

A) 16 B) 8 C) 4 D) 2 E) $\frac{1}{2}$

(2) Twenty-five percent of twenty percent of 100 is equal to what amount?

A) 8 B) 2.5 C) 20 D) $\frac{1}{20}$ E) 5

(3) 0.1 + 0.2 + 0.3 + . . . + 2.0 =

A) 0.21 B) 2.1 C) 21 D) 210 E) 2.01

(4) 15 hours = _____minutes.

A) 900 B) 90 C) 4 D) 360 E) 9

(5) What is the length of one side of a rectangle with perimeter of 24 cm if the adjacent side is 8 cm?

A) 8 B) 4 C) 16 D) 2 E) None of These

(6) What is the total number of days between September 18th and December 25th in the same calendar year?

A) 99 B) 98 C) 97 D) 96 E) 95

(7) If the sales tax for an item is $6\frac{1}{4}$ %, what does an item valued at \$8 cost including tax?

A) \$.85 B) \$12.80 C) \$8.63 D) \$8.50 E) \$8.05

(8) 4.5% is equivalent to what fraction?

A) $\frac{9}{100}$ B) $\frac{9}{20}$ C) $\frac{9}{200}$ D) $\frac{1}{45}$ E) $4\frac{1}{20}$

(9) Twenty-four liquid ounces is equal to how many pints?

A) 1.5 B) $\frac{2}{3}$ C) $1\frac{2}{3}$ D) $\frac{3}{4}$ E) 3

(10) When it is 7:00 AM in Fort Worth, Texas, it is 8:00 AM in Fairfax, Virginia and 1:00 PM in London, England on the same day. So, if it is 2:00 AM in London on a Monday, what time is it in Fort Worth?

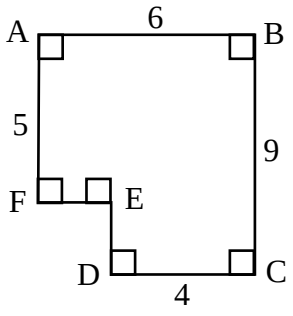
A) 1 AM Monday B) 8 AM Sunday C) 10 PM Monday D) 1 PM Monday E) 8 PM Sunday

(11) 0.008 km^2 = _____m^2.

A) 8 B) 80 C) 800 D) 8,000 E) 800,000

(12) What is the area of polygon ABCDEF to the right, in square units? (Note that figure is not drawn to scale.)

A) 24
B) 30
C) 46
D) 66
E) 74



(13) Richards Elementary School has 600 students. Each student takes 5 classes a day. Each teacher teaches 4 classes. Each class has 30 students and 1 teacher. How many teachers are there at Richards Elementary School?

A) 25 B) 30 C) 35 D) 50 E) 100

(14) If the length and width of a rectangle are each increased by 20%, then the perimeter of the rectangle is increased by what percent?

A) 2% B) 20% C) 40% D) 200% E) 400%

(15) $4\frac{1}{8} \times 4\frac{7}{8} =$

A) $16\frac{7}{64}$ B) $16\frac{7}{8}$ C) $20\frac{7}{8}$ D) $20\frac{7}{64}$ E) $18\frac{7}{8}$

(16) If the area of a rhombus with diagonals 16 and ***d*** is 80, what is the length of the other diagonal?

A) 5 B) 10 C) 32 D) 64 E) 70

(17) If $\frac{3}{8} - \frac{1}{n} = \frac{1}{4}$, then $n =$

A) $-\frac{1}{4}$ B) $-\frac{1}{8}$ C) $\frac{3}{32}$ D) 4 E) 8

(18) If the mean of 16, 5 and ***m*** is 12, then what is ***m***?

A) -1 B) 1 C) 11 D) 15 E) 47

(19) If your average score on your first six mathematics tests was 84 and your average score on your first seven mathematics tests was 85, then what is your score on the seventh test?

A) 86 B) 88 C) 90 D) 91 E) 92

(20) A square and a triangle have equal perimeters. The lengths of the three sides of the triangle are 6.2 cm, 8.3 cm and 9.5 cm. What is the area of the square?

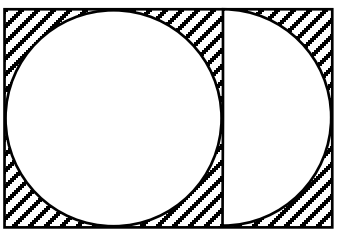
A) 24 cm^2 B) 36 cm^2 C) 48 cm^2 D) 64 cm^2 E) 144 cm^2

(21) 15 miles per hour = _____ feet per second (ft/s).

A) 60 ft/s B) 48 ft/s C) 44 ft/s D) 24 ft/s E) 22 ft/s

(22) The figure to the right is a rectangle circumscribing a circle and a semicircle. If the area of the circle is 4π, what is the shaded area equal to?

A) $24 - 6\pi$
B) $24 - 5\pi$
C) $24 - 4\pi$
D) $20 - 6\pi$
E) $20 - 5\pi$



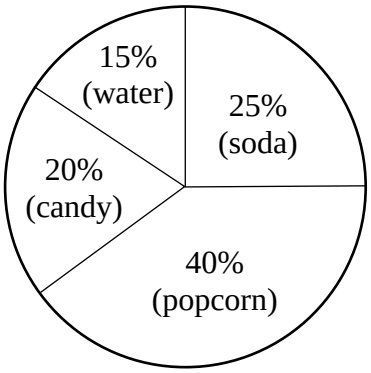
(23) A ream of paper containing 500 sheets is 5 cm thick. Approximately how many sheets of this type of paper would there be in a stack 7.5 cm high?

A) 250 B) 550 C) 667 D) 750 E) 1250

(24) What is the sum of the two largest prime numbers less than 100?
A) 186 B) 188 C) 190 D) 192 E) 196

For problems #25 – #28 please use the pie chart graph below.

Refreshments While at the Movies



(25) In a survey of 200 students from a local middle school the pie chart above gave a breakdown of favorite refreshments of the students when going to a movie theater. How many more students preferred soda to water as a refreshment?
A) 10 B) 15 C) 20 D) 30 E) 50

(26) In a survey of 200 students from a local middle school, the pie chart above gave a breakdown of favorite refreshments of the students when going to a movie theater. If a box of popcorn cost $2.50, how much money was spent buying popcorn?
A) $200 B) $800 C) $80 D) $2,000 E) $500

(27) In a survey of 200 students from a local middle school, the pie chart above gave a breakdown of favorite refreshments of the students when going to a movie theater. If the students bought a box of popcorn that cost $2.50 plus a bottle of water that cost $1.50, how much money was spent buying this combination of refreshments?
A) $2,200 B) $800 C) $275 D) $440 E) $22,000

(28) In a survey of 200 students from a local middle school, the pie chart above gave a breakdown of favorite refreshments of the students when going to a movie theater. How many students did not prefer to consume any beverage?
A) 80 students B) 120 students C) 60 students D) 160 students E) 125 students

(29) A father, whose age is forty-two, has a daughter whose age is nine. In how many years will the age of the daughter be one-fourth that of the father?
A) 2 years B) 3 years C) 4 years D) 6 years E) 12 years

(30) With a tail wind, a jet plane flew 2400 miles in 4 hours, but the plane required 6 hours for the return trip against the wind. What is the speed of the wind in miles per hour (mph)?
A) 25 mph B) 40 mph C) 50 mph D) 60 mph E) 100 mph

(31) If $5^{(x-2)} = 9$, then 5^x equals what number?
A) 25 B) 36 C) 90 D) 225 E) 900

(32) What is the greatest common factor (GCF) for $-18a^2b$ and $30a^2$?
A) $90ab$ B) $90\ a^2b$ C) $-90a^2b$ D) $6a^2b$ E) $6a^2$

(33) The degree measures of three angles of a triangle have the ratio of 4 : 4 : 7. What is the measure of the largest angle?
A) 42° B) 44° C) 48° D) 64° E) 84°

(34) 0.08333 . . . . =
A) $2\frac{1}{8}$ B) $2\frac{1}{3}$ C) $8\frac{1}{3}$ D) $\frac{83}{99}$ E) $\frac{1}{12}$

(35) What is the area of a square with a diagonal length of 12-m?
A) 144 m^2 B) 96 m^2 C) 84 m^2 D) 72 m^2 E) None of these

(36) What is the amount of simple interest for a loan of $1200 at 8% annual interest rate for 9 months?
A) $72 B) $60 C) $48 D) $36 E) $24

(37) If the sum of x numbers is 56 and their arithmetic mean is 7, what is x?
A) 14 B) 28 C) 56 D) 112 E) None of these

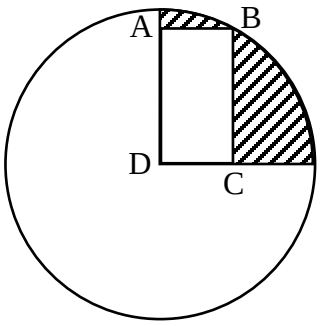
(38) What is the probability of drawing a face card or a ten from a standard deck of 52 cards?
A) $\frac{1}{8}$ B) $\frac{4}{13}$ C) $\frac{5}{26}$ D) $\frac{11}{26}$ E) $\frac{1}{13}$

(39) How many whole numbers are between $\sqrt{8}$ and $\sqrt{80}$?
A) 5 B) 6 C) 7 D) 8 E) 9

(40) If $a*b$ means $\frac{a+b}{2}$, then (3*5)*8 equals what number?
A) 6 B) 8 C) 12 D) 16 E) 30

(41) An ancient society seemed to have measured angles in cliks (cks). If there are 500 cliks in a full circle, how many cliks are in a right angle?
A) 90 cks B) 100 cks C) 125 cks D) 180 cks E) 250 cks

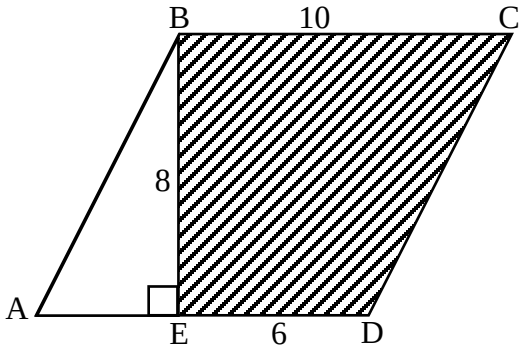
(42) In the figure to the right ABCD is a rectangle. D is the center of the circle and B is on the circle. If AD = 4 and CD = 3, then the area of shaded region is between
A) 4 and 5.
B) 5 and 6.
C) 6 and 7.
D) 7 and 8.
E) 8 and 9.



(43) The average weight of 6 boys is 150 pounds and the average weight of 4 girls is 120 pounds. What is the average weight of the 10 children?
A) 135 lbs. B) 137 lbs. C) 138 lbs. D) 140 lbs. E) 141 lbs.

(44) What is the area of the shaded region BCDE (in the figure to the right) in parallelogram ABCD?

A) 24
B) 48
C) 60
D) 64
E) 80

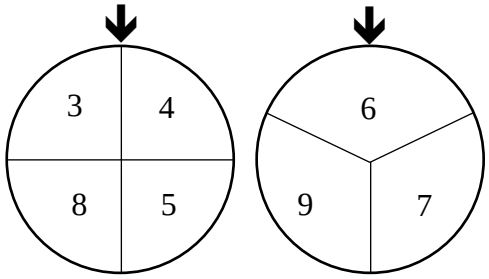


(45) In how many ways can 47 be written as the sum of two primes?

A) 1 B) 2 C) 3 D) 4 E) None of these

(46) Every time the two wheels in the illustration to the right are spun, two numbers are selected by the pointers. What is the probability that the sum of the two numbers selected is even?

A) $\frac{1}{6}$
B) $\frac{3}{7}$
C) $\frac{1}{2}$
D) $\frac{2}{3}$
E) None of these



(47) A dress originally priced at \$80 was put on sale at 25% off. If 10% tax was added to the sale price, then how much is the total selling price of the dress?

A) \$45 B) \$52 C) \$54 D) \$66 E) \$68

(48) A black bag contains only blue marbles and green marbles. There are only 6 blue marbles. If the probability of drawing a blue marble at random is $\frac{1}{4}$, then how many green marbles are there in the bag?

A) 12 B) 18 C) 24 D) 30 E) 36

(49) There are 120 seats in a row. What is the fewest number of seats that must be occupied so the next person to be seated must sit next to someone?

A) 30 B) 40 C) 41 D) 60 E) 119

(50) A straight concrete sidewalk is to be 3 feet wide, 60 feet long and 3 inches thick. How many cubic yards of concrete must a contractor order for the sidewalk if concrete must be ordered in a whole number of cubic yards?

A) 2 yds^3 B) 5 yds^3 C) 12 yds^3 D) 20 yds^3 E) 22 yds^3

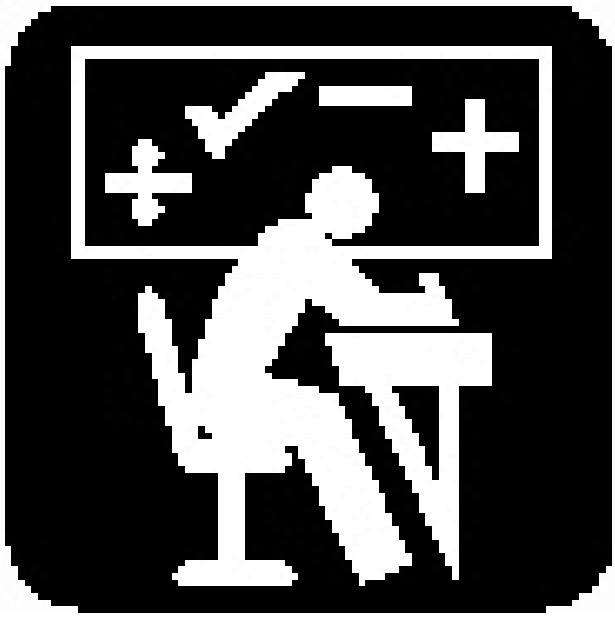
2020 – 2021 University Interscholastic League JH/MS Mathematics Contest A – Key

(1) B
(2) E
(3) C
(4) A
(5) B
(6) C
(7) D
(8) C
(9) E
(10) E
(11) C
(12) C
(13) A
(14) B
(15) D
(16) B
(17) E
(18) D
(19) D
(20) B
(21) E
(22) A
(23) D
(24) A
(25) C
(26) A
(27) D
(28) B
(29) A
(30) E
(31) D
(32) E
(33) E
(34) E
(35) D
(36) A
(37) E (8)
(38) B
(39) B
(40) A
(41) C
(42) D
(43) C
(44) D
(45) E (There are NO two primes that add to 47.)
(46) C
(47) D
(48) B
(49) B
(50) A

FALL/WINTER DISTRICT 2020-2021

A+ ACADEMICS

University Interscholastic League



Mathematics

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2020 – 2021 University Interscholastic League JH/MS Mathematics Contest B

(1) Evaluate: $32 \times 2^{-3} \div 2^{-1} \div 2^{0}$

A) 24 B) 16 C) 8 D) 4 E) 0

(2) The sum of twenty-five percent and twenty percent of 30 is equal to what amount?

A) $16\frac{1}{2}$ B) $1\frac{1}{5}$ C) $13\frac{1}{2}$ D) $\frac{9}{25}$ E) 6

(3) $8 - 1.0 - 0.9 - 0.8 - \ldots - 0.1 =$

A) 5.5 B) 4.5 C) 3.5 D) 2.5 E) 2.25

(4) 22 gallons = _____quarts.

A) 176 B) 88 C) 72 D) 44 E) 36

(5) What is the perimeter of a square with an area of 64?

A) 4 B) 8 C) 16 D) 32 E) 128

(6) What is the total number of days between September 18th and October 26th in the same calendar year?

A) 12 B) 18 C) 24 D) 36 E) None of these

(7) If the sales tax for an item is $7\frac{1}{2}$ %, what does an item valued at \$2 cost including tax?

A) \$.15 B) \$2.15 C) \$7.50 D) \$14.00 E) \$14.50

(8) Three-sixteenths is equivalent to what percent?

A) $18\frac{3}{4}$ % B) $16\frac{1}{2}$ % C) $16\frac{3}{4}$ % D) $18\frac{1}{4}$ % E) $6\frac{1}{4}$ %

(9) 140000 cm^2 = _____m^2.

A) 1,400 B) 14 C) 1.4 D) 0.14 E) 0.014

(10) Wesley and Noah are each riding a bicycle towards each other. They are initially 105 feet from each other. Wesley's average speed is 15 feet/second while Noah's average speed is 20 feet/second. How long does it take the brothers to reach each other?

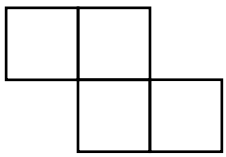
A) 3 seconds B) 0.3 second C) 5.25 seconds D) 7 seconds E) 12.25 seconds

(11) If the measurement of one rod equals 16.5 feet, how many rods are in one mile?

A) $106\frac{2}{3}$ rods B) 160 rods C) 320 rods D) 640 rods E) 1,760 rods

(12) The figure to the right consists of four identical size squares. If the total area enclosed by the squares is 64 square inches, what is the perimeter of the figure?

A) 40 inches
B) 44 inches
C) 48 inches
D) 64 inches
E) 72 inches



(13) How many quarter-inch cubes does it take to make a single one-inch cube?
A) 4 B) 16 C) 48 D) 64 E) 128

(14) If the length of the diameter of a circle is doubled, then the circle's area is increased by what factor?
A) 2 B) 4 C) 2π D) 8 E) 4π

(15) $6\frac{1}{3} \times 3\frac{1}{3} =$
A) $21\frac{1}{9}$ B) $18\frac{1}{3}$ C) $18\frac{1}{9}$ D) $21\frac{1}{3}$ E) $19\frac{1}{9}$

(16) If the area of a trapezoid with bases 4, 6 and altitude ***h*** is 80, what is the length of the altitude?
A) 8 B) 10 C) 12 D) 14 E) 16

(17) If $\frac{1}{6} - \frac{1}{n} = \frac{1}{4}$, then $n =$
A) $-\frac{1}{12}$ B) $-\frac{1}{2}$ C) $\frac{1}{12}$ D) -12 E) 12

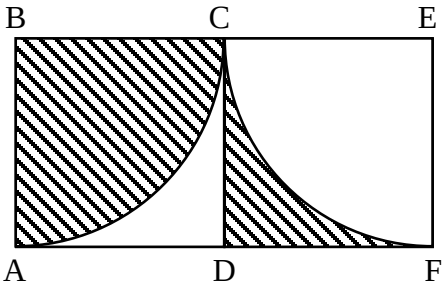
(18) If the mean of 12, 8 and ***m*** is 4, then what is ***m***?
A) -8 B) 3 C) 6 D) 10 E) 12

(19) The first side of a triangle is 2 inches shorter than 4 times the second side. The third side is 8 inches longer than the second side. If the perimeter is 12 feet, find the length of the longest side.
A) 9 feet B) 23 inches C) 5 feet D) 31 inches E) 90 inches

(20) On a Texas map the distance between Ft. Worth and El Paso is 5 inches. The approximate distance is 550 miles. If the distance between Arlington and Sarita is 3.5 inches on the same map. What is the approximate distance from Arlington to Sarita to the nearest mile?
A) 320 miles B) 385 miles C) 395 miles D) 415 miles E) 420 miles

(21) 18 kilometers per hour = _____ meters per second (m/s).
A) $64\frac{4}{5}$ m/s B) 32 m/s C) 10 m/s D) 5 m/s E) $\frac{5}{18}$ m/s

(22) Quadrilaterals ABCD and DCEF to the right are congruent squares with each side being 10 cm in length. Arcs AC and arc CF are quarter circles. What is the area of the shaded portion?
A) 10 cm^2
B) 40 cm^2
C) 50 cm^2
D) 80 cm^2
E) 100 cm^2



(23) How many whole numbers will evenly divide into $2^3 \times 3^2 \times 5^1$?
A) 6 B) 8 C) 10 D) 12 E) 24

(24) Dan is building 2 rabbit cages in the shape of rectangular prisms. The first cage is 3 feet long, 2 feet wide, and 2 feet high. The second cage has the same width and height but is twice as long. How many times larger is the volume of the second cage compared to the volume of the first cage?

A) 2 B) 4 C) 5 D) 6 E) 8

For problems #25 – #29 please use the chart below.

Miles Run Each Week

Week	Miles
1	2
2	5
3	8
4	11

(25) Amanda ran for exercise. The table above shows the total number of miles she ran through the end of each week. If the pattern continued how many miles did she run by the end of the twentieth week?

A) 40 miles B) 43 miles C) 56 miles D) 59 miles E) 62 miles

(26) Amanda ran for exercise. The table above shows the total number of miles she ran through the end of each week. What is the mean number of miles she ran in the first three weeks?

A) 15 miles B) 10 miles C) 5 miles D) 3 miles E) 2 miles

(27) Amanda ran for exercise. The table above shows the total number of miles she ran through the end of each week. What is the total number of miles she ran in the first five weeks?

A) 40 miles B) 41 miles C) 44 miles D) 47 miles E) 50 miles

(28) Amanda ran for exercise. The table above shows the total number of miles she ran through the end of each week. If she took a total of 10 hours to run her total miles during week 17, what was her average speed for that week in miles per hour (mph)?

A) $2\frac{1}{2}$ mph B) 4 mph C) $4\frac{1}{2}$ mph D) 5 mph E) 50 mph

(29) Amanda ran for exercise. The table above shows the total number of miles she ran through the end of each week. If the length of a single lap around the local high school track is 440 yards and there are 1,760 yards per mile, how many laps did Amanda run in week 7?

A) 120 laps B) 80 laps C) 68 laps D) 44 laps E) 40 laps

(30) With a current, a raft traveled 20 miles in 4 hours, but the raft required 6 hours for the return trip against the current. What is the speed of the current in miles per hour (mph)?

A) $1\frac{1}{2}$ mph B) $1\frac{5}{6}$ mph C) $\frac{5}{6}$ mph D) $1\frac{1}{3}$ mph E) $1\frac{1}{6}$ mph

(31) If 3^x equals $\frac{9^2 \times 27^3}{3^5}$, then what is x equal to?

A) 6 B) 7 C) 8 D) 9 E) 10

(32) What is the product of the GCF and LCM of 25 and 44?
A) 1,100 B) 825 C) 750 D) 550 E) 500

(33) The degree measures of three angles of a triangle have the ratio of 3 : 4 : 5. What is the measure of the largest angle?
A) 15° B) 45° C) 60° D) 75° E) 90°

(34) 0.08333 . . . . + 0.666 . . . =
A) $1\frac{3}{4}$ B) $\frac{3}{4}$ C) $1\frac{50}{99}$ D) $\frac{1874}{2499}$ E) $\frac{7}{12}$

(35) What is the diagonal length of a square with area 98 km^2?
A) 14 km B) $98\sqrt{2}$ km C) 28 km D) 12 km E) 16 km

(36) What is the amount of simple interest for a loan of $1200 at 6% annual interest rate for 8 months?
A) $576 B) $288 C) $48 D) $44 E) $40

(37) What is the product of the mean and median for the numbers: 12, 4, 8 and 6?
A) 49 B) 52 C) $52\frac{1}{2}$ D) $49\frac{1}{2}$ E) 51

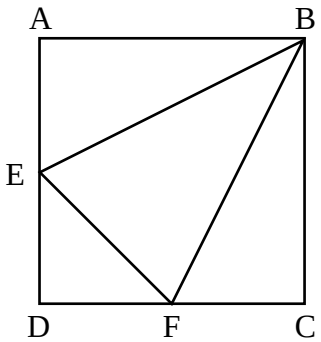
(38) What is the probability of drawing a king or an ace from a standard deck of 52 cards?
A) $\frac{1}{13}$ B) $\frac{4}{13}$ C) $\frac{3}{13}$ D) $\frac{5}{26}$ E) $\frac{2}{13}$

(39) What is the distance between -12 and 8 on the number line?
A) 4 B) 6 C) 8 D) 12 E) 20

(40) If $a*b$ means $\frac{a-b}{2}$, then (4*8)*10 equals what number?
A) 6 B) -6 C) -12 D) -2 E) 4

(41) In a certain country, $12\frac{1}{2}$ Wonkas (Wnk) equals $1. At this rate of currency exchange, what does $16 equal in Wonkas?
A) 200 Wnk B) 128 Wnk C) 150 Wnk D) 78 Wnk E) 192 Wnk

(42) In the figure to the right quadrilateral ABCD is a square with AB = 2-m, DE = 1-m and DF = 1-m. What is the area of triangle BFE?
A) 1 m^2
B) $\frac{3}{2}$ m^2
C) $\frac{5}{2}$ m^2
D) 2 m^2
E) 3 m^2

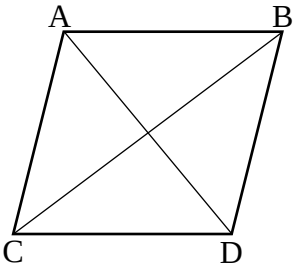


(43) Genny, who weighs 150 lbs. sits at one end of a 20-ft seesaw balanced at the middle. How far from the middle should Andy, who weighs 200 pounds, sit to balance the seesaw?

A) $2\frac{1}{2}$ ft. B) $3\frac{3}{4}$ ft. C) 5 ft. D) $7\frac{1}{2}$ ft. E) $7\frac{3}{4}$ ft.

(44) What is the area of the rhombus ABCD to the right if diagonal AD = 18 cm and diagonal BC = 24 cm?

A) 216 cm^2
B) 240 cm^2
C) 324 cm^2
D) 405 cm^2
E) 432 cm^2

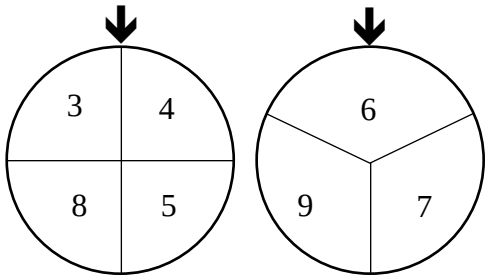


(45) In how many ways can 24 be written as the sum of two primes?

A) 1 B) 2 C) 3 D) 4 E) 5

(46) Every time the two wheels in the illustration to the right are spun, two numbers are selected by the pointers. What is the probability that the sum of the two numbers selected is a prime number?

A) $\frac{1}{2}$
B) $\frac{1}{4}$
C) $\frac{1}{3}$
D) $\frac{2}{3}$
E) None of these



(47) A coat originally priced at $100 was put on sale at 30% off. If 10% tax was added to the sale price, then how much is the total selling price of the coat?

A) $84 B) $77 C) $75.50 D) $37.50 E) $33

(48) A black bag contains only blue marbles and green marbles. There are only 12 blue marbles. If the probability of drawing a blue marble at random is $\frac{2}{3}$, then how many green marbles are there in the bag?

A) 12 B) 18 C) 4 D) 8 E) 6

(49) During the softball season, Mackenzie had 35 hits. Among her hits were 1 home run, 1 triple and 5 doubles. The rest of her hits were singles. What percent of her hits were singles?

A) 28% B) 35% C) 70% D) 75% E) 80%

(50) What is the 2020^{th} letter in the sequence:

ABCDEDCBAABCDEDCBAABCDEDCBA . . .?

A) A B) B C) C D) D E) E

2020 – 2021 University Interscholastic League JH/MS Mathematics Contest B – Key

(1) C
(2) C
(3) D
(4) B
(5) D
(6) E (37)
(7) B
(8) A
(9) B
(10) A
(11) C
(12) A
(13) D
(14) B
(15) A
(16) E
(17) E
(18) A
(19) E
(20) B
(21) D
(22) E
(23) E
(24) A
(25) D
(26) C
(27) A
(28) D
(29) B
(30) C
(31) C
(32) A
(33) D
(34) B
(35) A
(36) C
(37) C
(38) E
(39) E
(40) B
(41) A
(42) B
(43) D
(44) A
(45) D
(46) C
(47) B
(48) E
(49) E
(50) D

SPRING DISTRICT 2020-2021

A+ ACADEMICS

University Interscholastic League

Mathematics

DO NOT OPEN TEST
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2020 – 2021 University Interscholastic League JH/MS Mathematics Contest C

(1) Evaluate: $81 \times 3^{-3} \div 3^{-1} + 3^0$

A) 10 B) 9 C) 3 D) 2 E) 0

(2) The sum of twenty-five percent and twenty percent of 50 is equal to what amount?

A) $22\frac{1}{2}$ B) $4\frac{1}{8}$ C) $15\frac{1}{10}$ D) 10 E) 5

(3) 10 – 1.0 – 0.9 – 0.8 – . . . – 0.1 =

A) 5.5 B) 4.5 C) 4.25 D) 3.75 E) 2.5

(4) 24 gallons = _____quarts.

A) 3 B) 6 C) 12 D) 48 E) 96

(5) What is the perimeter of a square with an area of 144?

A) 12 B) 24 C) 36 D) 48 E) 72

(6) What is the total number of days between June 6th and July 30th in the same calendar year?

A) 24 B) 29 C) 53 D) 54 E) 55

(7) If the sales tax for an item is $7\frac{1}{2}$ %, what does an item valued at $4 cost including tax?

A) $4.30 B) $4.20 C) $7.50 D) $12.50 E) $14.30

(8) Five-sixteenths is equivalent to what percent?

A) $15\frac{3}{4}$ % B) $16\frac{1}{4}$ % C) $16\frac{3}{4}$ % D) $31\frac{1}{4}$ % E) $6\frac{1}{4}$ %

(9) 16000 cm^2 = _____m^2.

A) 1,600 B) 16 C) 1.6 D) 0.16 E) 0.01

(10) Wesley and Noah are each riding a bicycle towards each other. They are initially 200 feet from each other. Wesley's average speed is 12 feet/second while Noah's average speed is 8 feet/second. How long does it take the brothers to reach each other?

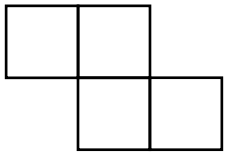
A) 25 seconds B) 20 seconds C) 10 seconds D) 8 seconds E) 5 seconds

(11) If the measurement of one rod equals 16.5 feet, how many rods are in one-half mile?

A) $106\frac{2}{3}$ rods B) 160 rods C) 320 rods D) 640 rods E) 1,760 rods

(12) The figure to the right consists of four identical size squares. If the total area enclosed by the squares is 144 square inches, what is the perimeter of the figure?

A) 36 inches
B) 44 inches
C) 48 inches
D) 60 inches
E) 70 inches



(13) How many half-inch cubes does it take to make a single one-inch cube?
A) 2 B) 4 C) 6 D) 8 E) 16

(14) If the length of the diameter of a circle is tripled, then the circle's area is increased by what factor?
A) 3 B) 6 C) 9 D) 3π E) 9π

(15) $8\frac{1}{4} \times 4\frac{1}{4} =$
A) $32\frac{1}{4}$ B) $32\frac{1}{16}$ C) $44\frac{1}{4}$ D) $40\frac{1}{4}$ E) $35\frac{1}{16}$

(16) If the area of a trapezoid with bases 4, 5 and altitude ***h*** is 18, what is the length of the altitude?
A) 4 B) 6 C) 8 D) 9 E) 12

(17) If $\frac{1}{8} - \frac{1}{n} = \frac{1}{4}$, then $n =$
A) $-\frac{1}{8}$ B) $-\frac{1}{4}$ C) -8 D) $\frac{1}{8}$ E) 4

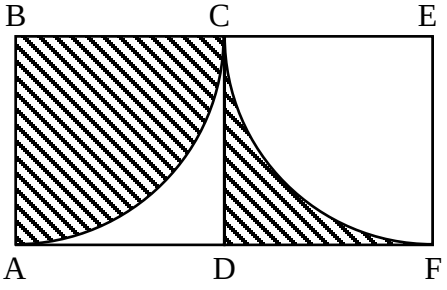
(18) If the mean of 10, 6 and ***m*** is 4, then what is ***m***?
A) 4 B) 8 C) -4 D) -12 E) -8

(19) The first side of a triangle is 2 inches shorter than 4 times the second side. The third side is 8 inches longer than the second side. If the perimeter is 8 feet, find the length of the longest side.
A) 6 feet B) 58 inches C) 7 feet D) 62 inches E) 64 inches

(20) On a Texas map the distance between Ft. Worth and El Paso is 5 inches. The approximate distance is 550 miles. If the distance between my home and a deer lease is 2.5 inches on the same map. What is the approximate distance from my home to deer lease to the nearest mile?
A) 1,375 miles B) 660 miles C) 575 miles D) 275 miles E) 110 miles

(21) 36 kilometers per hour = _____ meters per second (m/s).
A) $64\frac{4}{5}$ m/s B) 32 m/s C) 10 m/s D) 5 m/s E) $\frac{5}{18}$ m/s

(22) Quadrilaterals ABCD and DCEF to the right are congruent squares with each side being 12 cm in length. Arcs AC and arc CF are quarter circles. What is the area of the shaded portion?
A) 36 cm^2
B) 40 cm^2
C) 60 cm^2
D) 144 cm^2
E) 288 cm^2



(23) How many whole numbers will evenly divide into $2^2 \times 3^2 \times 5^4$?
A) 16 B) 24 C) 36 D) 48 E) 45

(24) Dan is building 2 rabbit cages in the shape of rectangular prisms. The first cage is 3 feet long, 2 feet wide, and 2 feet high. The second cage has the same width and height but is three times as long. How many times larger is the volume of the second cage compared to the volume of the first cage?
A) 2 B) 3 C) 9 D) 12 E) 18

For problems #25 – #29 please use the chart below.

Miles Run Each Week

Week	Miles
1	3
2	5
3	7
4	9

(25) Amanda ran for exercise. The table above shows the total number of miles she ran through the end of each week. If the pattern continued how many miles did she run by the end of the twentieth week?
A) 40 miles B) 41 miles C) 43 miles D) 45 miles E) 47 miles

(26) Amanda ran for exercise. The table above shows the total number of miles she ran through the end of each week. What is the mean number of miles she ran in the first three weeks?
A) 15 miles B) 10 miles C) 5 miles D) 3 miles E) 2 miles

(27) Amanda ran for exercise. The table above shows the total number of miles she ran through the end of each week. What is the total number of miles she ran in the first five weeks?
A) 30 miles B) 31 miles C) 32 miles D) 35 miles E) 37 miles

(28) Amanda ran for exercise. The table above shows the total number of miles she ran through the end of each week. If she took a total of 10 hours to run her total miles during week 17, what was her average speed for that week in miles per hour (mph)?
A) $3\frac{1}{2}$ mph B) 4 mph C) $4\frac{1}{2}$ mph D) 5 mph E) $5\frac{1}{2}$ mph

(29) Amanda ran for exercise. The table above shows the total number of miles she ran through the end of each week. If the length of a single lap around the local high school track is 440 yards and there are 1,760 yard per mile, how many laps did Amanda run in week 7?
A) 4 laps B) 8 laps C) 16 laps D) 48 laps E) 60 laps

(30) With a current, a raft traveled 20 miles in 4 hours, but the raft required 8 hours for the return trip against the current. What is the speed of the current in miles per hour (mph)?
A) $1\frac{1}{2}$ mph B) $1\frac{3}{4}$ mph C) $\frac{3}{4}$ mph D) $1\frac{1}{4}$ mph E) $1\frac{1}{3}$ mph

(31) If 2^x equals $\frac{4^2 \times 8^3}{2^5}$, then what is x equal to?
A) 5 B) 6 C) 8 D) 10 E) 19

(32) What is the product of the GCF and LCM of 16 and 25?
A) 100 B) 120 C) 250 D) 320 E) 400

(33) The degree measures of three angles of a triangle have the ratio of 6 : 8 : 10. What is the measure of the largest angle?
A) 15° B) 45° C) 60° D) 75° E) 90°

(34) 0.444 . . . . + 0.666 . . . =
A) 1 B) $1\frac{1}{10}$ C) $1\frac{1}{9}$ D) $\frac{9}{10}$ E) $1\frac{2}{9}$

(35) What is the diagonal length of a square with area 18 km^2?
A) 12 km B) $18\sqrt{2}$ km C) 6 km D) 36 km E) 40 km

(36) What is the amount of simple interest for a loan of $800 at 6% annual interest rate for 8 months?
A) $32 B) $36 C) $40 D) $44 E) $48

(37) What is the product of the mean and median for the numbers: 12, 10, 8 and 6?
A) 9 B) 81 C) 18 D) 90 E) 72

(38) What is the probability of drawing a queen or an ace from a standard deck of 52 cards?
A) $\frac{1}{13}$ B) $\frac{4}{13}$ C) $\frac{3}{13}$ D) $\frac{5}{26}$ E) $\frac{2}{13}$

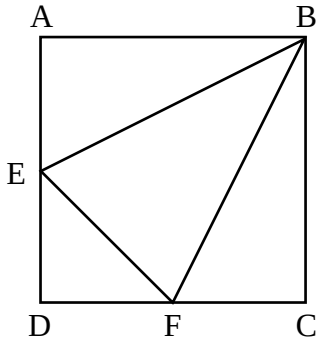
(39) What is the distance between -12 and 12 on the number line?
A) 0 B) 6 C) 12 D) 24 E) 36

(40) If $a*b$ means $\frac{a-b}{2}$, then (6*8)*9 equals what number?
A) -5 B) -10 C) 5 D) -6 E) 6

(41) In a certain country $12\frac{1}{2}$ Wonkas (Wnk) equals $1. At this rate of currency exchange what does $24 equal in Wonkas?
A) 200 Wnk B) 300 Wnk C) 350 Wnk D) 416 Wnk E) 450 Wnk

(42) In the figure to the right quadrilateral ABCD is a square with AB = 4-m, DE = 2-m and DF = 2-m. What is the area of triangle BFE?

A) 16 m^2
B) 12 m^2
C) 10 m^2
D) 8 m^2
E) 6 m^2

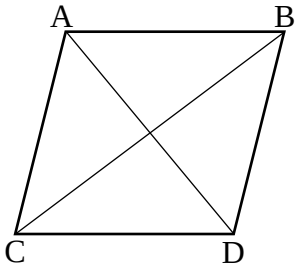


(43) Genny, who weighs 150 lbs. sits at one end of a 12-ft seesaw balanced at the middle. How far from the middle should Andy, who weighs 200 pounds, sit to balance the seesaw?

A) 9 ft. B) $4\frac{3}{4}$ ft. C) $4\frac{1}{2}$ ft. D) 5 ft. E) $5\frac{1}{4}$ ft.

(44) What is the area of the rhombus ABCD to the right If diagonal AD = 10 cm and diagonal BC = 12 cm?

A) 120 cm^2
B) 44 cm^2
C) 60 cm^2
D) 432 cm^2
E) 110 cm^2

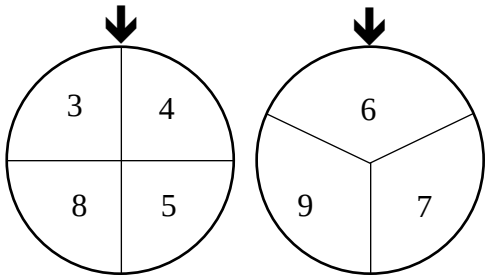


(45) In how many ways can 28 be written as the sum of two primes?

A) 1 B) 2 C) 3 D) 4 E) 5

(46) Every time the two wheels in the illustration to the right are spun two numbers are selected pointers. What is the probability that the sum of the two numbers selected is divisible by 3?

A) $\frac{1}{2}$
B) $\frac{1}{4}$
C) $\frac{1}{3}$
D) $\frac{2}{3}$
E) $\frac{1}{6}$



(47) A coat originally priced at $100 was put on sale at 40% off. If 10% tax was added to the sale price, then how much is the total selling price of the coat?

A) $44.40 B) $44 C) $70 D) $66 E) $77.30

(48) A black bag contains only blue marbles and green marbles. There are only 16 blue marbles. If the probability of drawing a blue marble at random is $\frac{2}{3}$, then how many green marbles are there in the bag?

A) 12 B) 18 C) 4 D) 8 E) 6

(49) During the softball season, Mackenzie had 40 hits. Among her hits were 3 home runs, 2 triples and 5 doubles. The rest of her hits were singles. What percent of her hits were singles?

A) 10% B) 30% C) 60% D) 75% E) 80%

(50) What is the 2021st letter in the sequence:

ABCDEDCBAABCDEDCBAABCDEDCBA . . .?

A) A B) B C) C D) D E) E

2020 – 2021 University Interscholastic League JH/MS Mathematics Contest C – Key

(1) A
(2) A
(3) B
(4) E
(5) D
(6) C
(7) A
(8) D
(9) C
(10) C
(11) B
(12) D
(13) D
(14) C
(15) E
(16) A
(17) C
(18) C
(19) B
(20) D
(21) C
(22) D
(23) E
(24) B
(25) B
(26) C
(27) D
(28) A
(29) E
(30) D
(31) C
(32) E
(33) D
(34) C
(35) C
(36) A
(37) B
(38) E
(39) D
(40) A
(41) B
(42) E
(43) C
(44) C
(45) B
(46) C
(47) D
(48) D
(49) D
(50) E

University Interscholastic League
2020 – 2021 Junior High Number Sense Test A

Contestant's Number _____

Final	_____	_____
2nd	_____	_____
1st	_____	_____
	Score	**Initials**

Read Directions Carefully Before Beginning Test

Do Not Unfold This Sheet Until Told to Begin

Directions: Do not turn this page until the person conducting this test gives the signal to begin. This is a ten-minute test. There are 80 problems. Solve accurately and quickly as many as you can in the order in which they appear. **ALL PROBLEMS ARE TO BE SOLVED MENTALLY**. Make no calculations with paper and pencil. Write only the answer in the space provided at the end of each problem. Problems marked with a (*) require approximate integral answers; any answer to a starred problem that is within five percent of the exact answer will be scored correct; all other problems require exact answers.

The person conducting this contest should explain these directions to the contestants.
Stop – Wait for Signal!

(1) $2021 + 2020 =$ _____

(2) $202 \times 25 =$ _____

(3) $201 \div 3 =$ _____

(4) $18 - 12 \div 3 =$ _____

(5) $\frac{1}{2} + \frac{1}{6} =$ _____

(6) $412 - 214 =$ _____

(7) $202 \div 0.5 =$ _____

(8) $14^2 =$ _____

(9) $2 \times 13 \times 15 =$ _____

*(10) $2021 + 20190 + 20 =$ _____

(11) $3.5 \times 2 =$ _____

(12) If the mean of 6, 11, and ***m*** is 9, then ***m*** = _____

(13) Which is smaller $\frac{9}{16}$ or $\frac{5}{9}$? _____

(14) $11 \times 38 =$ _____

(15) The median of 12, 5, 8 and 10 is _____

(16) $23 \times 12 - 23 \times 2 =$ _____

(17) $22 \times 37 =$ _____

(18) $12 + 15 + 18 + 21 =$ _____

(19) MDLV = _____ (Arabic Numeral)

*(20) $555 \times 899 + 55 =$ _____

(21) $101 \times 246 =$ _____

(22) If $f(x) = 2x^2 - 5$, the $f(6) =$ _____

(23) 4 cups = _____ ounces

(24) $12\frac{1}{3} \times 12\frac{2}{3} =$ _____ (mixed number)

(25) $3\frac{1}{20} - 1\frac{1}{10} =$ _____

(26) $105 \times 103 =$ _____

(27) The positive square root of 576 is _____

(28) If ***n*** is to 12 as 8 is to 24, then ***n*** = _____

(29) If $12 - 4x$ is 16 then $x =$ _____

*(30) $12^4 =$ _____

(31) $84 \times 150 =$ _____

(32) The smallest prime number greater than 50 is _____

(33) If $\frac{1}{2} + \frac{3}{4} = \frac{1}{n}$, then $n =$ _____

(34) The GCD of 36 and 24 is _____

(35) 2.5 cm^2 = _____ mm^2

(36) 2.5 percent = _____ (common fraction)

(37) The total cost of item that costs \$16 with a sales tax of $6\frac{1}{4}$ % is \$ _____

(38) $38 \times 78 =$ _____

(39) The radius of a circle with area 361π is _____

*(40) $\sqrt{66564} =$ _____

(41) 231 (base 4) = _____ (base 10)

(42) $11^3 =$ _____

(43) The surface area of a rectangular box with edges 2, 3 and 4 centimeters is _____cm^2

(44) What is the length of a diagonal of a rhombus with an area of 36 m^2 and other diagonal 8 m? _____m

(45) 23 (base 5) + 133 (base 5) = _____ (base 5)

(46) $72 \times 78 =$ _____

(47) $\frac{5}{6} + \frac{6}{5} =$ _____(mixed number)

(48) $75 \times 16 =$ _____

(49) $0.1 + 0.2 + 0.3 + \ldots + 1.0 =$ _____ (decimal)

*(50) $48 \times 50 \times 52 =$ _____

(51) In the sequence: 1, 3, ***a***, 7, 9, ***b***, 13, . . .
a + ***b*** = _____

(52) If $\frac{2}{3}x + 12 > 8$, then $x >$ _____

(53) What is the area of a right triangle with leg 4 cm and hypotenuse 5 cm? _____cm^2

(54) What is the sum of the interior angles of a hexagon? _____degrees

(55) If six minus four times a number is thirty, what is the number? _____

(56) What is the area of a trapezoid with bases 14, 12 and altitude 25? _____

(57) If set **A** = {0, 2, 4, . . ., 10} and set **B** = {1, 2, 3, . . ., 10}, then the number of elements in $\mathbf{A} \cap \mathbf{B}$ is _____

(58) $13^5 \div 11$ has a remainder of _____

(59) $111 \times 465 =$ _____

*(60) $1880 \times 319 =$ _____

(61) $2^4 + 2^3 + 2^2 + 2^1 + 2^0 =$ _____

(62) 18 days = _____ hours

(63) The area of a square with diagonal 12 is _____

(64) 25% of 16% of 100 = _____

(65) What are the odds of picking a queen from a standard deck of 52 cards? _____

(66) What is the cost of 15 pounds of meat that cost $5.99 per pound? $_____

(67) How many whole numbers will evenly divide into 24? _____

(68) 7! = _____

(69) $8\frac{1}{4} \times 4\frac{1}{4} =$ _____(mixed number)

*(70) $206700 \div 111 =$ _____

(71) $27^2 - 13^2 =$ _____

(72) $0.454545 \ldots =$ _____ (common fraction)

(73) $(14^3 + 13 \times 17) \div 12$ has a remainder of _____

(74) What is the radius of a sphere with a surface area of 64π? _____

(75) $375 \times 32 =$ _____

(76) $143 \times 21 =$ _____

(77) What is the distance between the points (0, 3) and (-4, 0)? _____

(78) $\frac{12!}{10!} =$ _____

(79) $8^2 + 24^2 =$ _____

*(80) $\sqrt{626} \times \sqrt{320} =$ _____

2020 – 2021 University Interscholastic League Junior High Number Sense Test A – Key

(1) 4041

(2) 5050

(3) 67

(4) 14

(5) $\frac{2}{3}$

(6) 198

(7) 404

(8) 196

(9) 390

*(10) 21121 – 23342

(11) 7

(12) 10

(13) $\frac{5}{9}$

(14) 418

(15) 9

(16) 230

(17) 814

(18) 66

(19) 1555

*(20) 474050 – 523950

(21) 24846

(22) 67

(23) 32

(24) $156\frac{2}{9}$

(25) $1\frac{19}{20}$; 1.95; $\frac{39}{20}$

(26) 10815

(27) 24

(28) 4

(29) -1

*(30) 19700 – 21772

(31) 12600

(32) 53

(33) $\frac{4}{5}$; .8

(34) 12

(35) 250

(36) $\frac{1}{40}$

(37) 17.00

(38) 2964

(39) 19

*(40) 246 – 270

(41) 45

(42) 1331

(43) 52

(44) 9

(45) 211

(46) 5616

(47) $2\frac{1}{30}$

(48) 1200

(49) 5.5

*(50) 118560 – 131040

(51) 16

(52) -6

(53) 6

(54) 720

(55) -6

(56) 325

(57) 5

(58) 10

(59) 51615

*(60) 569734 – 629706

(61) 31

(62) 432

(63) 72

(64) 4

(65) $\frac{1}{12}$

(66) 89.85

(67) 8

(68) 5040

(69) $35\frac{1}{16}$

*(70) 1770 – 1955

(71) 560

(72) $\frac{5}{11}$

(73) 1

(74) 4

(75) 12000

(76) 3003

(77) 5

(78) 132

(79) 640

*(80) 426 – 469

Note: *(Number) x – y means an integer between x and y inclusive.

If an answer is of the type like $\frac{2}{3}$ it cannot be written as .666… or $.\overline{6}$.

University Interscholastic League
2020 – 2021 Junior High Number Sense Test B

Contestant's Number _____

Final	_____	_____
2nd	_____	_____
1st	_____	_____
	Score	**Initials**

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Stop – Wait for Signal!

(1) $219 + 2020 =$ _____

(2) $2020 - 219$ _____

(3) $2020 \div 4 =$ _____

(4) $21 \times 11 =$ _____

(5) $\frac{7}{8} - \frac{1}{16} =$ _____

(6) $501 - 105 =$ _____

(7) $12 \div 0.25 =$ _____

(8) $17^2 =$ _____

(9) $4 \times 12 \times 5 =$ _____

*(10) $209 \times 333 + 3 =$ _____

(11) $2.5 \times 4 =$ _____

(12) If the mean of 8, 5, and ***m*** is 12, then ***m*** = _____

(13) Which is larger $\frac{3}{4}$ or $\frac{7}{9}$? _____

(14) $31 \times 63 =$ _____

(15) The median of 11, 15, 5 and 10 is _____

(16) $32 \times 33 =$ _____

(17) $17 \times 25 - 13 \times 25 =$ _____

(18) $11 + 15 + 19 + 23 =$ _____

(19) MCMLI = _____ (Arabic Numeral)

*(20) $24 \times 441 \times 10 =$ _____

(21) $369 \times 101 =$ _____

(22) If $f(x) = 18 - 2x^2$, the $f(3) =$ _____

(23) 2 quarts = _____ ounces

(24) $5\frac{3}{4} \times 5\frac{1}{4} =$ _____ (mixed number)

(25) $7\frac{5}{8} + 1\frac{3}{4} =$ _____

(26) $97 \times 93 =$ _____

(27) The negative cube root of 27 is _____

(28) If ***n*** is to 4 as 11 is to 24, then ***n*** = _____

(29) If $20 - 3x$ is 11 then $x =$ _____

*(30) $8^5 =$ _____

(31) $64 \times 125 =$ _____

(32) The largest prime number less than 70 is _____

(33) If $\frac{2}{3} + \frac{3}{4} = \frac{1}{n}$, then $n =$ _____

(34) The LCM of 18 and 12 is _____

(35) 6.5 m^2 = _____ dm^2

(36) 5.5 percent = _____ (common fraction)

(37) The total cost of item that costs \$32 with a sales tax of $6\frac{1}{4}$ % is \$ _____

(38) $43 \times 63 =$ _____

(39) The diameter of a circle with area 16π is _____

*(40) $\sqrt{130321}$ = _____

(41) 143 (base 5) = _____ (base 10)

(42) 12^3 = _____

(43) The surface area of a cube is 54 cm^2. What is the length of its edge? _____ cm

(44) What is the area of a rhombus with diagonals 12 cm and 75 cm? _____cm^2

(45) 342 (base 5) – 34 (base 5) = _____ (base 5)

(46) $72 \times 78 =$ _____

(47) $\frac{7}{4} + \frac{4}{7} - 2 =$ _____ (common fraction)

(48) $75 \times 24 =$ _____

(49) $0.1 + 0.3 + 0.5 + \ldots + 1.1 =$ _____ (decimal)

*(50) $89 \times 90 \times 91 =$ _____

(51) In the sequence: 1, 4, ***a***, 16, 25, ***b***, 49, . . .
b – ***a*** = _____

(52) If $9 - \frac{2}{3}x > 21$, then $x <$ _____

(53) What is the area of a right triangle with leg 5 cm and hypotenuse 13 cm? _____cm^2

(54) If the sum of the interior angles of a convex polygon is 540°, how many edges does it have? _____

(55) If six minus a number divided by five is twenty-nine, what is the number? _____

(56) What is the area of a trapezoid with bases 14, 12 and altitude 13? _____

(57) If set **A** = {3, 6, 9, . . ., 15} and set **B** = {2, 4, 6, . . ., 16}, then the number of elements in $\mathbf{A} \cap \mathbf{B}$ is _____

(58) $15^4 \div 10$ has a remainder of _____

(59) $372 \times 111 =$ _____

*(60) $1670 \times 359 =$ _____

(61) $3^4 - 3^3 - 3^2 - 3^1 - 3^0 =$ _____

(62) 22 days = _____ hours

(63) The area of a square with diagonal 18 is _____

(64) 45% of 20% of 100 = _____

(65) If the odds of it raining are 10 to 1, the probability of it is raining is_____(common fraction)

(66) What is the cost of 12 pounds of meat that cost $6.99 per pound? $_____

(67) How many whole numbers will evenly divide into 32? _____

(68) 6! = _____

(69) $12\frac{1}{3} \times 3\frac{1}{3} =$ _____ (mixed number)

*(70) $310400 \div 111 =$ _____

(71) $34^2 - 23^2 =$ _____

(72) 0.363636 . . . =_____ (common fraction)

(73) $(19^3 - 13 \times 16) \div 5$ has a remainder of _____

(74) If the surface area of a sphere with diameter 6 is $\boldsymbol{k}\pi$, what is ***k***? _____

(75) $625 \times 80 =$ _____

(76) $143 \times 28 =$ _____

(77) What is the distance between the points (5, 13) and (2, 9)? _____

(78) $\frac{15!}{13!} =$ _____

(79) $6^2 + 18^2 =$ _____

*(80) $\sqrt{257} \times \sqrt{575} =$ _____

2020 – 2021 University Interscholastic League Junior High Number Sense Test B – Key

(1) 2239

(2) 1801

(3) 505

(4) 231

(5) $\frac{13}{16}$; .8125

(6) 396

(7) 48

(8) 289

(9) 240

*(10) 66120 – 73080

(11) 10

(12) 23

(13) $\frac{7}{9}$

(14) 1953

(15) 10.5; $10\frac{1}{2}$; $\frac{21}{2}$

(16) 1056

(17) 100

(18) 68

(19) 1951

*(20) 100548 – 111132

(21) 37269

(22) 0

(23) 64

(24) $30\frac{3}{16}$

(25) $9\frac{3}{8}$; 9.375; $\frac{75}{8}$

(26) 9021

(27) -3

(28) $\frac{11}{6}$; $1\frac{5}{6}$

(29) 3

*(30) 31130 – 34406

(31) 8000

(32) 67

(33) $\frac{12}{17}$

(34) 36

(35) 6500

(36) $\frac{11}{200}$

(37) 34.00

(38) 2709

(39) 8

*(40) 343 – 379

(41) 48

(42) 1728

(43) 3

(44) 450

(45) 303

(46) 5616

(47) $\frac{9}{28}$

(48) 1800

(49) 3.6

*(50) 692465 – 765355

(51) 27

(52) -18

(53) 30

(54) 5

(55) -115

(56) 169

(57) 2

(58) 5

(59) 41292

*(60) 569554 – 629506

(61) 41

(62) 528

(63) 162

(64) 9

(65) $\frac{10}{11}$

(66) 83.88

(67) 6

(68) 720

(69) $41\frac{1}{9}$

*(70) 2657 – 2936

(71) 627

(72) $\frac{4}{11}$

(73) 1

(74) 36

(75) 50000

(76) 4004

(77) 5

(78) 210

(79) 360

*(80) 366 – 403

Note: *(Number) x – y means an integer between x and y inclusive.

If an answer is of the type like $\frac{2}{3}$ it cannot be written as .666… or $.\overline{6}$.

University Interscholastic League
2020 – 2021 Junior High Number Sense Test C

Contestant's Number _____

Final	_____	_____
2nd	_____	_____
1st	_____	_____
	Score	**Initials**

Read Directions Carefully Before Beginning Test

Do Not Unfold This Sheet Until Told to Begin

Directions: Do not turn this page until the person conducting this test gives the signal to begin. This is a ten-minute test. There are 80 problems. Solve accurately and quickly as many as you can in the order in which they appear. **ALL PROBLEMS ARE TO BE SOLVED MENTALLY**. Make no calculations with paper and pencil. Write only the answer in the space provided at the end of each problem. Problems marked with a (*) require approximate integral answers; any answer to a starred problem that is within five percent of the exact answer will be scored correct; all other problems require exact answers.

The person conducting this contest should explain these directions to the contestants.
Stop – Wait for Signal!

(1) $220 + 2021 =$ _____

(2) $2021 - 219$ _____

(3) $219 \div 3 =$ _____

(4) $19 \times 11 =$ _____

(5) $\frac{8}{9} - \frac{1}{6} =$ _____

(6) $201 - 102 =$ _____

(7) $21 \div 0.25 =$ _____

(8) $19^2 =$ _____

(9) $4 \times 16 \times 5 =$ _____

*(10) $419 \times 333 + 73 =$ _____

(11) $4.5 \times 4 =$ _____

(12) If the mean of 18, 15, and ***m*** is 12, then ***m*** = _____

(13) Which is larger $\frac{8}{15}$ or $\frac{7}{13}$? _____

(14) $29 \times 63 =$ _____

(15) The median of 11, 12, 5 and 15 is _____

(16) $45 \times 33 =$ _____

(17) $24 \times 25 - 14 \times 25 =$ _____

(18) $12 + 16 + 20 + 24 =$ _____

(19) MCMLXXXI = _____(Arabic Numeral)

*(20) $28 \times 1431 \times 10 =$ _____

(21) $829 \times 101 =$ _____

(22) If $f(x) = 28 - 2x^2$, the $f(4) =$ _____

(23) 3 quarts = _____ounces

(24) $7\frac{3}{5} \times 7\frac{2}{5} =$ _____ (mixed number)

(25) $4\frac{5}{9} + 1\frac{2}{3} =$ _____

(26) $91 \times 94 =$ _____

(27) The negative cube root of 64 is _____

(28) If ***n*** is to 4 as 9 is to 24, then ***n*** = _____

(29) If $20 - 4x$ is 12 then $x =$ _____

*(30) $6^5 =$ _____

(31) $24 \times 125 =$ _____

(32) The largest prime number less than 100 is _____

(33) If $\frac{5}{6} + \frac{1}{2} = \frac{1}{n}$, then $n =$ _____

(34) The LCM of 15 and 25 is _____

(35) 0.67 m^2 = _____ dm^2

(36) 8.5 percent =_____ (common fraction)

(37) The total cost of item that costs \$48 with a sales tax of $6\frac{1}{4}$ % is \$ _____

(38) $97 \times 17 =$ _____

(39) The diameter of a circle with area 25π is _____

*(40) $\sqrt{180625}$ = _____

(41) 124 (base 6) = _____ (base 10)

(42) 13^3 = _____

(43) The surface area of a cube is 24 cm^2. What is the length of its edge? _____ cm

(44) What is the area of a rhombus with diagonals 16 cm and 75 cm? _____cm^2

(45) 221 (base 5) – 14 (base 5) = _____ (base 5)

(46) $43 \times 47 =$ _____

(47) $\frac{5}{8} + \frac{8}{5} - 2 =$ _____(common fraction)

(48) $75 \times 12 =$ _____

(49) $0.2 + 0.4 + 0.6 + \ldots + 1.2 =$_____ (decimal)

*(50) $79 \times 80 \times 81 =$ _____

(51) In the sequence: 3, 6, ***a***, 12, 15, ***b***, 21, . . .
b – ***a*** =_____

(52) If $9 - \frac{2}{3}x > 39$, then $x <$ _____

(53) What is the area of a right triangle with leg 12 cm and hypotenuse 13 cm? _____cm^2

(54) If the sum of the interior angles of a convex polygon is 720°, how many edges does it have? _____

(55) If six minus a number divided by four is twenty-one, what is the number? _____

(56) What is the area of a trapezoid with bases 13, 11 and altitude 12? _____

(57) If set **A** = {1, 2, 3, . . ., 14} and
set **B** = {2, 4, 6, . . ., 16}, then the number of elements in $\mathbf{A} \cup \mathbf{B}$ is _____

(58) $25^4 \div 10$ has a remainder of _____

(59) $566 \times 111 =$ _____

*(60) $417 \times 359 - 3 =$ _____

(61) $2^4 - 2^3 - 2^2 - 2^1 - 2^0 =$ _____

(62) 15 days =_____ hours

(63) The area of a square with diagonal 22 is _____

(64) 28% of 20% of 100 = _____

(65) If the odds of it raining are 5 to 9, the probability of it is raining is_____(common fraction)

(66) What is the cost of 11 pounds of meat that cost $6.99 per pound? $_____

(67) How many whole numbers will evenly divide into 27? _____

(68) 5! = _____

(69) $8\frac{1}{3} \times 4\frac{1}{3} =$ _____ (mixed number)

*(70) $399600 \div 111 =$ _____

(71) $45^2 - 34^2 =$ _____

(72) 0.818181 . . . =_____ (common fraction)

(73) $(29^3 - 12 \times 26) \div 5$ has a remainder of _____

(74) If the surface area of a sphere with diameter 4 is $k\pi$, what is ***k***? _____

(75) $625 \times 16 =$ _____

(76) $143 \times 35 =$ _____

(77) What is the distance between the points (-3, 13) and (2, 1)? _____

(78) $\frac{25!}{23!} =$_____

(79) $9^2 + 27^2 =$ _____

*(80) $\sqrt{360} \times \sqrt{440} =$ _____

2020 – 2021 University Interscholastic League Junior High Number Sense Test C – Key

(1) 2241

(2) 1802

(3) 73

(4) 209

(5) $\frac{13}{18}$

(6) 99

(7) 84

(8) 361

(9) 320

*(10) 132620 – 146580

(11) 18

(12) 3

(13) $\frac{7}{13}$

(14) 1827

(15) 11.5; $11\frac{1}{2}$; $\frac{23}{2}$

(16) 1485

(17) 250

(18) 72

(19) 1981

*(20) 380646 – 420714

(21) 83729

(22) -4

(23) 96

(24) $56\frac{6}{25}$

(25) $6\frac{2}{9}$; $\frac{56}{9}$

(26) 8554

(27) -4

(28) $\frac{3}{2}$; $1\frac{1}{2}$; 1.5

(29) 2

*(30) 7388 – 8164

(31) 3000

(32) 97

(33) $\frac{3}{4}$; .75

(34) 75

(35) 67

(36) $\frac{17}{200}$

(37) 51.00

(38) 1649

(39) 10

*(40) 404 – 446

(41) 52

(42) 2197

(43) 2

(44) 600

(45) 202

(46) 2021

(47) $\frac{9}{40}$

(48) 900

(49) 4.2

*(50) 486324 – 537516

(51) 9

(52) -45

(53) 30

(54) 6

(55) -60

(56) 144

(57) 15

(58) 5

(59) 62826

*(60) 142215 – 157185

(61) 1

(62) 360

(63) 242

(64) 5.6; $5\frac{3}{5}$; $\frac{28}{5}$

(65) $\frac{5}{14}$

(66) 76.89

(67) 4

(68) 120

(69) $36\frac{1}{9}$

*(70) 3420 – 3780

(71) 869

(72) $\frac{9}{11}$

(73) 2

(74) 16

(75) 10000

(76) 5005

(77) 13

(78) 600

(79) 810

*(80) 379 – 417

Note: *(Number) x – y means an integer between x and y inclusive.

If an answer is of the type like $\frac{2}{3}$ it cannot be written as .666… or $.\overline{6}$.

2020-21 A+ Ready Writing

INVITATIONAL

INSTRUCTIONS

Choose **one** of the following topics. Write the topic you have chosen at the top of your paper. **You should also include an original, creative title for your paper.** Remember you should not use your real name or that of your school.

SEVENTH AND EIGHTH GRADES

Topic: *Living Forwards*

Soren Kierkegaard once said, "Life can only be understood backwards; but it must be lived forwards." Think about what this quote means. Write an essay explaining its meaning using examples from your own life, the lives of others, or stories you have read to further prove your interpretation.

Topic: *Lesson Learned*

Think about a story you read where the main character learned a lesson from a previous experience. Write an essay describing the lesson the character learned and how it impacted his or her life.

2020-21 A+ Ready Writing

FALL/WINTER DISTRICT

INSTRUCTIONS

Choose **one** of the following topics. Write the topic you have chosen at the top of your paper. **You should also include an original, creative title for your paper.** Remember you should not use your real name or that of your school.

SEVENTH AND EIGHTH GRADES

Topic: *Flow*

The idea of "flow" occurs when a person is so absorbed or so fully engaged in an activity that he or she becomes "lost in time." This could occur when you are doing a job such as schoolwork or a hobby such as playing basketball for examples. Think about all the activities you enjoy. Write about an activity that makes you experience "flow" explaining what you love about the activity and why it makes you lose track of time.

Topic: *Money or Happiness?*

Would you rather make a lot of money doing a job you hate, or would you rather make less money doing a job you love? Write an essay explaining your opinion.

2020-21 A+ Ready Writing

SPRING DISTRICT

INSTRUCTIONS

Choose **one** of the following topics. Write the topic you have chosen at the top of your paper. **You should also include an original, creative title for your paper.** Remember you should not use your real name or that of your school.

SEVENTH AND EIGHTH GRADES

Topic: *Fear's Survival*

The writer Steve Maraboli once said, "Your fear is 100% dependent on you for survival." Write an essay explaining what you think that quote means and apply it to your life in some way.

Topic: *Advancing Technology*

Think about the ways that technology has advanced. In your opinion, do you think it has advanced too far or not far enough? Write an essay using specific examples to support your opinion.

UIL A+ Science Update

Starting in the 2021-22 school year, Science has moved to one test for students in grades 6-8.

The following tests are from last year when the test was split into Science I and Science II.

The new Science test will include similar types of questions and will cover current state-adopted curriculum and textbooks with approximately 15 questions for each grade level (6, 7, and 8) and five wild card or general questions on the test.

Below are sample questions and a key for the updated Science event.

2021-2022 A+ SCIENCE
SAMPLE QUESTIONS

1. Within any group of elements on the periodic table the metallic character tends to do which of the following from bottom to top in the group?

A. Increase B. Decrease C. Remains constant

2. A tennis ball is dropped from a step stool one meter high. At which position does the tennis ball have the greatest potential energy and least kinetic energy?
   A. At 0 meter high
   B. At .25 meter high
   C. At .5 meter high
   D. At .75 meter high

3. A car travels 35 kilometers in 30 minutes. What is the average speed of this car?
   A. .86 km/hr
   B. 1.17 km/hr
   C. 70 km/hr
   D. 700 km/hr

4. A class was studying human body systems. Composed of a number of small organs distributed throughout the body, this system coordinates the metabolic activity of body cells by interacting with the nervous system. The class was studying which of the following systems?
   A. Endocrine system
   B. Immune system
   C. Circulatory system
   D. Muscular system

5. According to cell theory, what do each of the following organisms have in common?

A. They can all reproduce by spontaneous generation.
B. Each organism is able to photosynthesize.
C. Cells are the basic unit of structure for each organism.
D. They are all made up of the same exact atoms.

6. In recent years, there have been numerous agencies planning manned trips to Mars. Why is traveling to Mars so difficult?
   A. Temperatures in space
   B. Distance between planets
   C. No landing runway on Mars
   D. Erratic motion of planets

7. Speed is a scalar type of measurement and velocity is a vector type measurement. What is the main difference between scalar and vector measurements?
   A. Scalar measurements include a direction
   A. Vector measurements include a direction
   B. Neither scalar nor vector measurements include a direction
   C. Both scalar and vector measurements include a direction

8. A force acts on a soccer ball for four seconds causing it to accelerate. If the ball is replaced with a similar ball with four times the mass and the same force is applied for the same amount of time, the acceleration of the similar ball will now be –

   A. One fourth the value
   B. One half the value
   C. Twice the value
   D. Four times the value

9. Which of the following best supports the Big Bang Theory?
   A. Various shapes of galaxies
   B. Speed of light
   C. Red & blue shifts of light from stars
   D. The motion of planets in orbit

10. What does this symbol indicate about a substance?
   A. Can cause injury to skin
   B. Can burn easily
   C. Hazardous to the environment
   D. Harmful to inhale

SAMPLE QUESTIONS
KEY

1. B
2. D
3. C
4. A
5. C
6. A
7. B
8. A
9. C
10. B

CONTESTANT NUMBER:

FOR GRADER USE ONLY Score Test Below: _____Initials_____ _____Initials_____ **Papers contending to place:** _____Initials_____	**University Interscholastic League** **A+ Science Contest • Answer Sheet**

Write your contestant number in the upper right corner and circle your grade below.

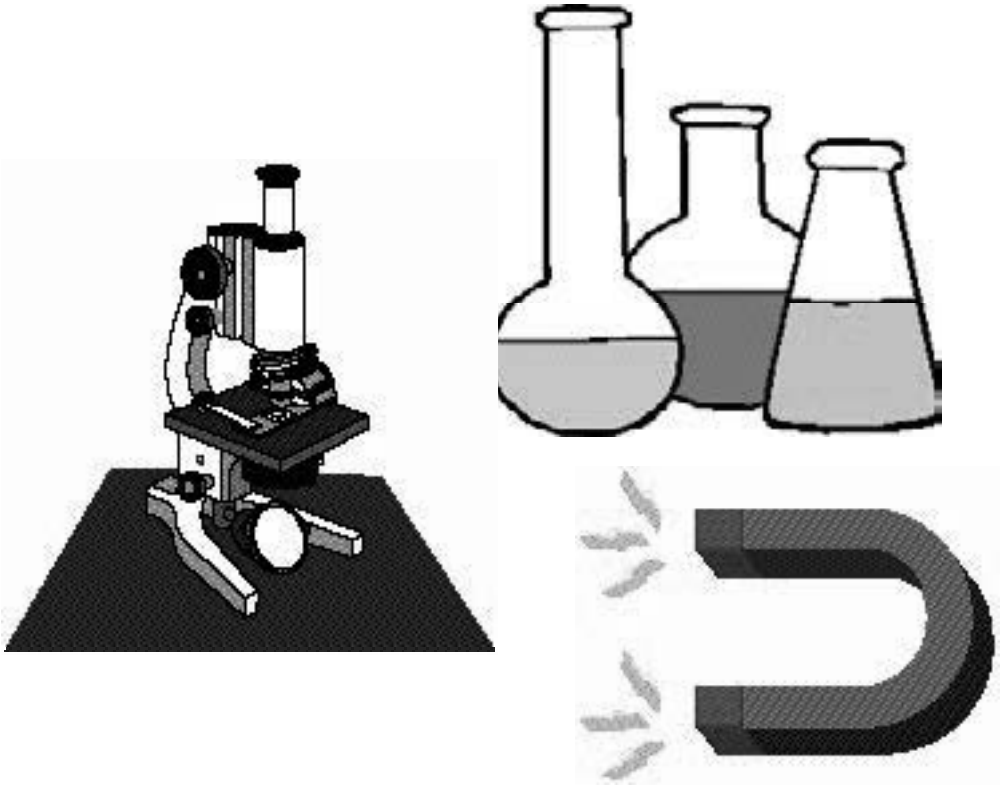
Circle Grade Level: 6 7 8

1.	A	B	C	D	18.	A	B	C	D	35.	A	B	C	D
2.	A	B	C	D	19.	A	B	C	D	36.	A	B	C	D
3.	A	B	C	D	20.	A	B	C	D	37.	A	B	C	D
4.	A	B	C	D	21.	A	B	C	D	38.	A	B	C	D
5.	A	B	C	D	22.	A	B	C	D	39.	A	B	C	D
6.	A	B	C	D	23.	A	B	C	D	40.	A	B	C	D
7.	A	B	C	D	24.	A	B	C	D	41.	A	B	C	D
8.	A	B	C	D	25.	A	B	C	D	42.	A	B	C	D
9.	A	B	C	D	26.	A	B	C	D	43.	A	B	C	D
10.	A	B	C	D	27.	A	B	C	D	44.	A	B	C	D
11.	A	B	C	D	28.	A	B	C	D	45.	A	B	C	D
12.	A	B	C	D	29.	A	B	C	D	46.	A	B	C	D
13.	A	B	C	D	30.	A	B	C	D	47.	A	B	C	D
14.	A	B	C	D	31.	A	B	C	D	48.	A	B	C	D
15.	A	B	C	D	32.	A	B	C	D	49.	A	B	C	D
16.	A	B	C	D	33.	A	B	C	D	50.	A	B	C	D
17.	A	B	C	D	34.	A	B	C	D					

INVITATIONAL 2020-2021

A+ ACADEMICS

University Interscholastic League

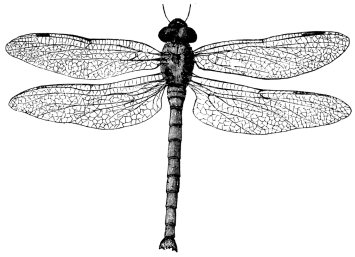


Science I

DO NOT OPEN TEST
UNTIL TOLD TO DO SO

UNIVERSITY INTERSCHOLATIC LEAGUE
2020-2021 SCIENCE I
INVITATIONAL TEST

1. Using the following information identify the insect.



1. Does the insect have wings? Remember most adult insects have 2 pairs of wings, but they're not always visible.	a. Yes	go to step 2
	b. No	Order Hemiptera
2. Does the insect have parallel wings?	a. Yes	go to step 3
	b. No	go to step 4
3. Does the insect have a parallel line down the back that divides the wings?	a. Yes	Order Coleoptera
	b. No	Order Orthoptera
4. Does the insect have 4 total wings?	a. Yes	go to step 5
	b. No	Order Diptera
5. Does the insect have long antennae?	a. Yes	go to step 6
	b. No	Order Odonata
6. Does the insect have a small body with large fan –shaped wings?	a. Yes	Order Lepidoptera
	b. No	Order Hymenoptera

A. Order Hemiptera
B. Order Coleoptera
C. Order Diptera
D. Order Odonata

2. Which of these converts radiant energy to chemical energy?
   A. Flashlight bulb
   B. TV screen
   C. Tree leaf
   D. Campfire

3. In a student led experiment, 4 worms were place at each end of a compartmented container based on specific temperature ranges. After 10 minutes, all of the worms were congregated in the center compartment. The students concluded that the organisms had moved as far as they could during the time period. Which other explanation is best supported?
   A. Worms need to be with other worms for warmth
   B. Worms moved to the preferred temperature range
   C. Worms randomly move until they locate other worms
   D. Worms moved until they ran out of energy and remain stationary

4.

Species

Species A

The illustration shows the relationship of two species living in a grassland biome. What can be concluded about the location of the two species in a food web?
   A. Species A and B occupy the same level of the food web.
   B. Species A is located on a higher level of the food web.
   C. It would be inappropriate for species A and B to be placed in the same food web.
   D. Species B is located on a higher level of the food web.

5. Which organ is responsible for most of the chemical digestion in the human body?
   A. mouth
   B. stomach
   C. small intestine
   D. large intestine

6. Reptiles do not have the ability to create their own heat. They must lay in the sun for prolonged periods of time to regulate their body temperature. Mammals have the ability to create their own heat. Where do mammals get the energy for this heat?
   A. The oxygen they inhale
   B. From light the animals absorb
   C. From radiation in the body
   D. From food the animals eat

7. Researchers on the ISS studying plant growth would probably see that the plants do not grow in the same manner and direction as those on Earth do. Researchers working in space would most likely be studying which of the following effects?
   A. Friction
   B. Gravity
   C. Convection currents
   D. Humidity

8. A landslide is the movement of rock, earth, or debris down a sloped section of land. Landslides can be caused by rain, earthquakes, or volcanic activity that make the slope unstable. If all of the plants in the valley are buried from a landslide. New plants that begin to grow in the valley after the landslide will mostly likely not have access to which of the following —
   A. Fresh air
   B. Ample sunlight
   C. Fertile soil
   D. Water

9. Over time, erosion can greatly affect a coastal environment. Which of the following is a direct result of erosion on coastal environments?
   A. Coastal land areas increase
   B. Due to wave action on beaches, rocks are lost
   C. Competition for resources increases due to lost habitats
   D. Increase of concrete production

10. A natural spring of water starts a river flowing in Texas. The spring water flows up into an area that is used as a recreational swimming pool, and then flows into a river downstream. A determined amount of water consistently flows out of the spring every day. Which of the following statements is true about the spring and the river?
   A. The water from the spring is ground water that enters the surface water of the river.
   B. The water from the river and spring are both examples of surface water.
   C. The water from the river and spring are both examples of ground water.
   D. The water from the spring and river are considered run-off.

11. Which of the following characteristics essential to the existence of life here on Earth?

1. Earth's acceleration due to gravity is 9.8 m/s^2 2. Earth's atmosphere is composed of mostly nitrogen with oxygen and carbon dioxide. 3. Almost 99% of the minerals making up the Earth's crust are made up of just eight elements. 4. Temperatures range from -25 degrees Celsius to 45 degrees Celsius. 5. Earth's magnetic field serves to deflect most of the solar wind.

   A. Characteristics 2 and 4
   B. Characteristics 1, 2, and 4
   C. Characteristics 1 and 3
   D. Characteristics 2, 4, and 5

12. A student hypothesized that algae will grow the most if they are exposed to light that has a wavelength of 495 nm. To test this hypothesis, the student should design an experiment with which of the following as the independent variable?
   A. Color of the algae
   B. Rate of growth of the algae
   C. Wavelength of light that algae are exposed to
   D. Time of exposure to light

13. After a space craft has launched into orbit which of the following statements would be most accurate?
    A. Once in orbit, the space craft has escaped earth's gravity it no longer requires an upward force from rockets.
    B. During launch, the rocket must apply Newton's Laws of motion, but once in orbit these laws no longer apply.
    C. The craft in orbit must have artificial lighting systems since that they are in space and will no longer receive sunlight.
    D. During launch the craft moves vertically, once in orbit it only moves horizontally.

14. A good adaptation for vegetation living in a rainforest would be —
    A. Front legs and paws that allow animals to burrow into the ground
    B. The ability to grow very high to reach the sunlight
    C. Layers of insulating feathers or fur
    D. The ability of plants to regrow after fires

15. The more diverse an ecosystem is —
    A. the faster populations become extinct
    B. the more similar the species will be
    C. the more stable the ecosystem becomes
    D. the fewer number of species are present

16. The role of a pioneer species are the first to return after a disturbance, they are the first stage of succession, and their presence increases the diversity in a region. A species that is responsible for primary succession in an ecosystem is most likely able to —
    A. Fend off a predator
    B. Migrate
    C. Live in arid environment
    D. Produce its own food

17. The flower Black-eyed Susans have petals that appear yellow to humans, but UV markings give them a bull's eye-like design. These markings help the plants —
    A. Avoid parasites
    B. Attract pollinators
    C. Seek out moisture
    D. Create a strong scent to attract organisms

18. Many people prefer breeds of dog that have specific traits. Recently there has been a surge in selectively breeding dogs to produce specific traits. Which of the following would most likely be a favorable trait that dog breeders try to produce?
    A. Dogs with no ears
    B. Dogs that don't shed
    C. Dogs with large eyes
    D. Dogs that don't bark

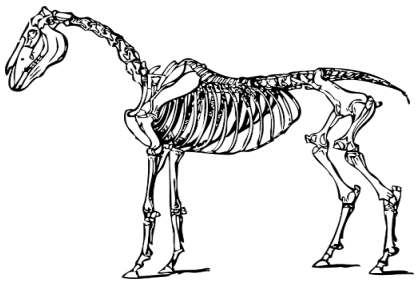
19. Complex animals use their circulatory systems to provide their cells with water and food. Plants do not have circulatory systems. What have they developed instead to move nutrients and water?
    A. Xylem & Phloem
    B. Cork Cells
    C. Thylakoids
    D. Granum

20. Which of the following is not a part of the integumentary system of the body?
    A. Hair
    B. Fingernails
    C. Skin
    D. Esophagus

21. An animal's kidneys' job is to filter your blood. They remove wastes, control the body's fluid balance, and keep the right levels of electrolytes. To which level of biological organization does the kidney belong?
    A. Cell
    B. Tissue
    C. Organ
    D. Organ system

22. Which structures perform similar functions in plant and animal cells?
    A. Mitochondria and cell membrane
    B. Vacuole and chloroplast
    C. Cell wall and nucleus
    D. Ribosome and chloroplast

23. Which type of cell has a structure that most closely resembles a similar function to that of a skeletal system in a horse?
    A. Animal cell
    B. Bacterial cell
    C. Virus
    D. Plant cell



24. Which set of materials would be most appropriate to prepare a wet mount slide containing an onion cell?
    A. Microscope slides, cover slips, alcohol, scissors, toothpicks
    B. Microscope slides, cover slips, water, forceps, scalpel
    C. Microscope slides, cover slips, salt, scalpel, probe
    D. Microscope slides, cover slips, forceps, salt water

25. According to the Cell Theory, viruses are not considered living. Which of the following would refute this previous statement concerning the Cell Theory?
    A. All living organisms have the ability to reproduce by themselves and viruses are not able to do this.
    B. All living organisms have the ability to make their own energy and viruses are not able to do this.
    C. All living organisms have the ability to move and viruses are not able to do this.
    D. All living organisms are made from cells and viruses are not made from cells.

26. An elk grazing sees a nearby cougar charging to attack and eat the elk. Which of the following is the most likely response of the elk?
    A. Stand tall and intimidate the cougar
    B. Disregard the charging cougar
    C. Flee from the cougar
    D. Attack the cougar

27. Bacteria can enter a person's body through many ways. As a result of harmful bacteria, an individual can vomit. This response helps fights infection by —
    A. Expelling the harmful bacteria from the body
    B. Killing the harmful bacteria with acids found in the stomach
    C. Creating new cells to track down and kill the harmful bacteria
    D. Keeping the harmful bacteria away from other individuals

28. In snapdragons a cross between a homozygous parent with white flowers (C^WC^W) and a homozygous parent with red flowers (C^RC^R) will produce offspring with pink flowers (C^RC^W). Using what the student has learned about genetics, there is evidence that shows the offspring has which of the following —
    A. Pure recessive
    B. Pure dominance
    C. Incomplete Dominance
    D. Codominance

29. A cat breeder was surprised when a white cat was born in a litter of brown cats. They researched to discover that white cat fur can result from a mutation. A mutation means that —
    A. The genetic information didn't copy correctly
    B. The mother did not get enough nutrition
    C. The white cat belonged to another litter
    D. The white cat had its paternal genes only

30. A student is creating a family tree for a class project. While doing his research, he gathered pictures of all his cousins. From the pictures, he noticed that his cousins in the pictures all looked similar. What is the most likely reason for this resemblance?
    A. They have similar cell types.
    B. They have similar DNA.
    C. They have similar chloroplasts.
    D. They have similar ribosomes.

31. A scientist develops a hypothesis, designs and conducts an experiment, and obtains data that supports the hypothesis. Which of the following best describes when a hypothesis becomes a theory?
    A. If one good set of data is collected
    B. If the scientific method is followed correctly
    C. Data is communicated to others
    D. Data is supported by consistent data from numerous trials

32. Which of the following is the highest temperature?
    A. 38°C B. 96°F C. 300 K

33. Which of these instruments will measure 77.5 ml the most precisely?
    A. A 200 ml flask, graduated in 2 ml increments
    B. A test tube with no markings on it
    C. A 100 ml beaker graduated in 10 ml increments
    D. A 100 ml cylinder graduated in 1 ml increments

34. Which best describes the following graphic?

A. Qualitative data
B. Inference
C. Quantitative data
D. Hypothesis

35. A student measures a piece of glass tubing that is 35.35 cm long. His measurements were 37.25 cm, 37.32 cm, 37.15cm and 37.20 cm. Which of the following statements is true?
    A. the measurements were accurate but not precise
    B. the measurements were precise but not accurate
    C. the measurements were both precise and accurate
    D. the measurements were neither precise not accurate

UNIVERSITY INTERSCHOLASTIC LEAGUE
2020-2021 SCIENCE I
INVITATIONAL TEST

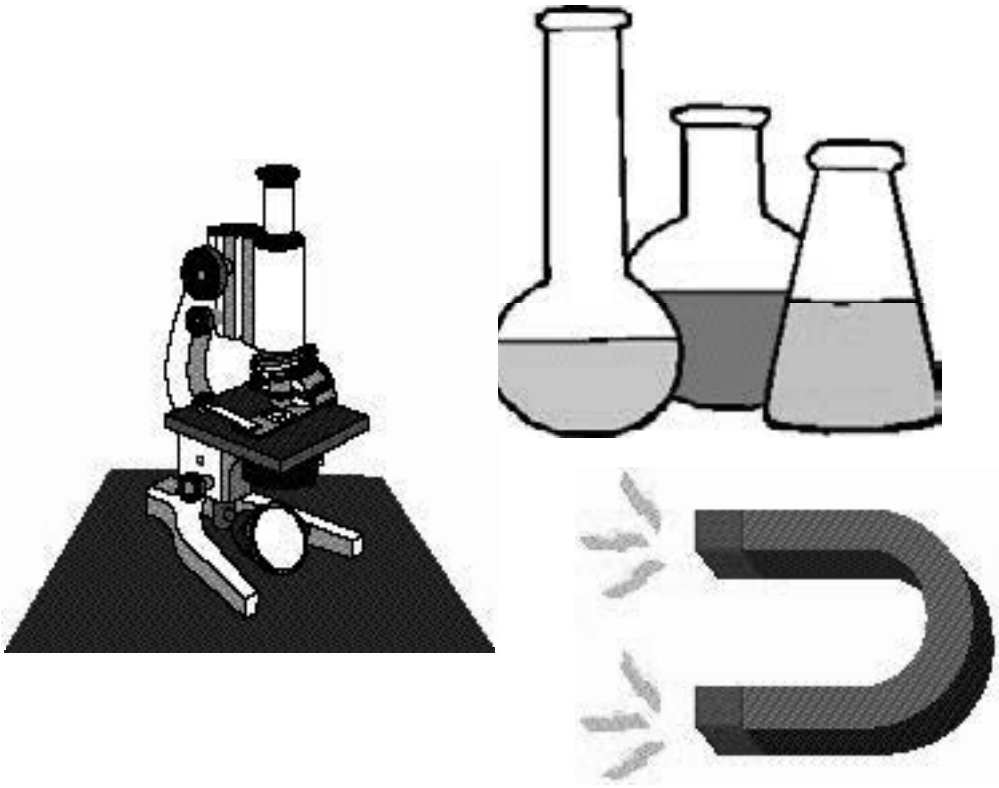
Answer Key

1. D
2. C
3. B
4. D
5. C
6. D
7. B
8. C
9. C
10. A
11. D
12. C
13. A
14. B
15. C
16. D
17. B
18. B
19. A
20. D
21. C
22. A
23. D
24. B
25. D
26. C
27. A
28. C
29. A
30. B
31. D
32. A
33. D
34. C
35. B

INVITATIONAL 2020-2021

A+ ACADEMICS

University Interscholastic League



Science II

DO NOT OPEN TEST
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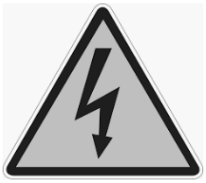
UNIVERSITY INTERSCHOLATIC LEAGUE
2020-2021 SCIENCE II
INVITATIONAL TEST

1. You should see this safety symbol when you need to take precaution when inhaling.

A. 

C. 

B. 

D. 

2. A student is studying strontium, a highly reactive element that humans need for strong bones. Which characteristic of strontium is most closely related to its chemical reactivity?
   A. The 38 protons in each atom
   B. The density is 2.45 g/cm^3
   C. The atomic mass is 87.62 amu
   D. The 2 valence electrons in each atom

3. How many kilograms are there in 6.5 pounds? (2.2 lbs = 1 kg)
   A. 14.3 kg
   B. 6.5 kg
   C. 2.95 kg
   D. .34 kg

4. A certain atom consists of 12 protons, 11 neutrons, and a number of electrons. Which information will be most useful in determining the identity of the atom?
   A. The number of nucleons
   B. The number of protons
   C. The number of electrons
   D. The number of valence electrons

5. Which of the following is the highest temperature?
   A. 38^{o}C
   B. 96^{o}F
   C. 300 K

6. Which property of an element would be most useful in determining the column it belongs in the periodic table?
   A. The boiling point
   B. The brittleness
   C. The color of it
   D. The chemical reactivity

7. The chemical formula for sodium sulfate is Na_2SO_4. How many sodium atoms are in the formula for sodium sulfate?
   A. 1
   B. 2
   C. 6
   D. 7

8. A student mixes two solutions, planning to produce carbon dioxide. Which of the following is the evidences best illustrates that a chemical reaction has produced CO_2 gas?
   A. A change in color
   B. Formation of a precipitate
   C. Bubble formation
   D. Change in temperature

9. Four students' carts filled with food across the parking lot. Each student pushes with the same amount of force. Which cart has the greatest change in speed?
   A. A cart with a 10 kg mass
   B. A cart with a 5 kg mass
   C. A cart with a 7 kg mass
   D. A cart with a 15 kg mass

10. A team in Dallas travels south to San Antonio to participate in a tournament. The trip from Dallas to San Antonio is about 440 kilometers. The trip requires about 4 hours to complete on a bus. Which of the following best represents the velocity of the bus?
    A. 110 km/h
    B. 110 km/h South
    C. 1760 km/h
    D. 1760 km/h South

11. Andrew gathered a car, an incline plane, a stopwatch, a meter stick and a several weights. What is most likely being testing?
    A. How the angle of a ramp affects the speed of the car
    B. How friction affects the speed of the car
    C. How forces work on the placement of the car and the ramp
    D. How mass affects the speed of the car

12. The friction due to air acting on a softball causes it to curve as it is pitched to home plate. This is a result of which of the following:
    A. Newton's 1st law
    B. Newton's 2nd law
    C. Newton's 3rd law
    D. Universal Law of Gravitation

13. Which of the following situation would allow for every location on Earth would have 12 hours of daylight and 12 hours of darkness per day?
    A. Earth orbiting the sun in at a faster period each year
    B. Earth orbiting the sun in a perfect circle
    C. Earth is not tilted on its current axis
    D. Earth having multiple natural satellites

14. A parent explains how the moon shines to a small child by comparing it to an object that the child uses. Which statement below is the best explanation?

A. The moon is like a flashlight. It produces its own light.
B. The moon is like a mirror. It reflects light.
C. The moon is like a glow stick. It produces its own light.
D. The moon is like a toaster. When it gets hot enough it glows.

15. Which moon phase is associated with the highest tides?
A. Three quarter
B. First quarter
C. New

16. A student was measuring a small amount of liquid during an experiment. What unit will she most likely use to record the data found in the experiment?
A. Kilograms
B. Mass
C. Milliliter
D. Volume

17. The mass of a star helps determine which of the following —
A. The length of its lifecycle.
B. The position of the star.
C. The galaxy it is located in.
D. The color of the star.

18. Why does Earth get more energy from the sun as compared to all the other stars in the universe combined?
A. The sun is much bigger than all the other stars.
B. The sun is much hotter than all the other stars.
C. The sun is denser than all the other stars.
D. The sun is closer compared to the other stars.

19. Which of the following waves would be the most concerning to a human due to the wave's amount of energy and penetrating ability?
A. Gamma Rays
B. Visible light
C. Infrared
D. Radio waves

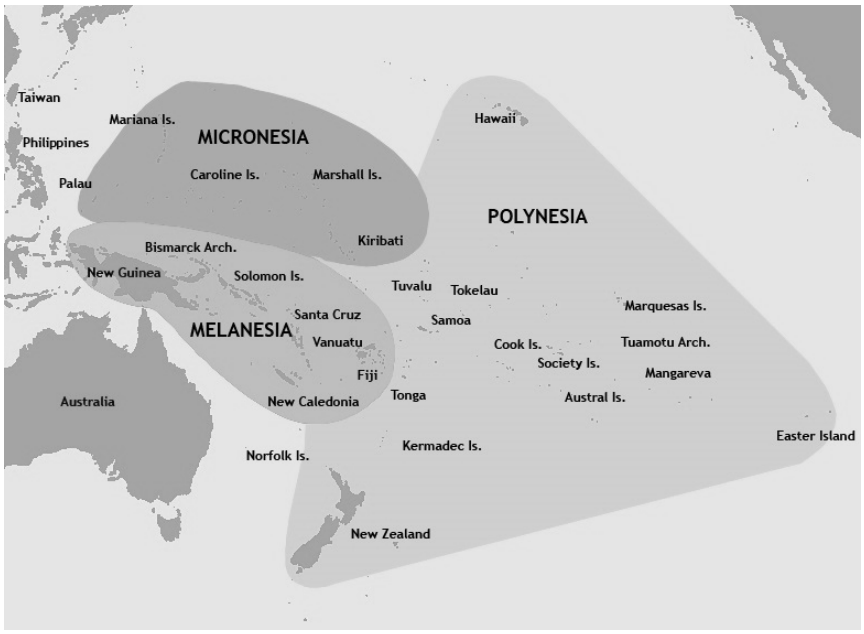
20. Copernicus was the first to suggest which of the following concerning planetary motion —
A. The universe has no center.
B. The Earth was not at the center of the solar system.
C. The Earth is at the center of the solar system.
D. The sun is at the center of the universe.

21. A science class made a model of a riverbed using a pool and damp sand. They "walked" a class pet through the sand, leaving behind footprints. Which processes were the students' most likely modeling?
A. Formation of oil
B. Creation of fossils
C. Extinction of animals
D. Formation of a river

22. South America and Africa looked like they fit together similar to a puzzle. Which individual theorized this?
    A. Einstein
    B. Hubble
    C. Wegener
    D. Hess

23. Islands located in the Pacific Ocean form because of which of the following?

    A. As the sea floor spreads apart, sediments gather due to ocean currents.
    B. The water pressure causes magma to rise to the surface.
    C. The atmospheric pressure.
    D. The sea floor is spreading apart and magma is pushing to the surface.



24. What does a blue dashed line on the topographic map most likely represent?
    A. Hiking trail
    B. River
    C. Different rock type
    D. Change in vegetation

25. When watching the weather map online, there are often "L" shown on the maps, as seen below. The "L" represents an area of low atmospheric pressure.

    Which of the following is most likely occurring in the atmosphere in the area located at the "L"?
    A. Air is sinking at this location causing skies that are clear.
    B. Air is sinking at this location causing skies that are cloudy.
    C. Air is rising at this location causing skies that are clear.
    D. Air is rising at this location causing skies that are cloudy.

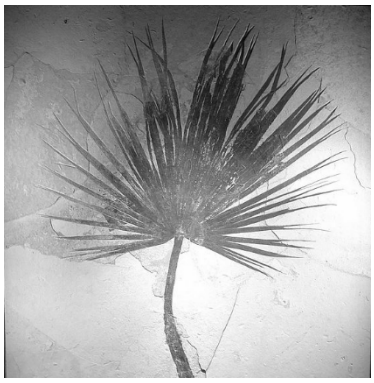
26. A student uses a beaker, graduated cylinder, and a ruler to make measurements during a laboratory experiment. What was the student most likely measuring with these tools?
    A. Mass
    B. Density
    C. Volume
    D. Temperature

27. A student created a model of convection in the ocean using a glass cup, mineral water, and food coloring. The model did NOT demonstrate convection as the student had intended. The model could be improved to demonstrate convection in the oceans by adding which of the following to the design –
    A. Adding a desk lamp
    B. Adding a hot plate
    C. Additional food colors
    D. Adding a fan

28. Weather on the western edge of which of the following is most likely to be affected by an La Niña event —
    A. Africa
    B. Australia
    C. South America
    D. Spain

29. Which of the following is not an example of how biotic factors interact with abiotic factors in an ecosystem?
    A. A wolf hunting its prey.
    B. Plants removing carbon dioxide from the air and adding oxygen.
    C. Dogs causing erosion by digging holes in the ground.
    D. Reptiles sun basking.

30. Fossils of tropical organisms can be found buried in limestone rock in the North Texas region. These plants and animals are no longer found in this area. Which of the following is most likely the cause of the disappearance of these tropical organisms?
    A. Natural disasters destroyed all the tropical organisms.
    B. Tropical animals ate all the tropical plants and everything became extinct.
    C. Pollution killed off all the tropical organisms.
    D. The climate in that area is different today than when tropical organisms lived.



31. In order to determine whether a liquid is acidic or basic, which would be the best to use:
    A. Salinity test
    B. Turbidity test
    C. Dissolved oxygen test
    D. pH test

32. Many coastal regions are dependent on fishing for their local economies. Some areas have struggled because of overfishing. Which of the following would not be a recommendation of the scientists to help the local communities to reestablish the fish populations?
    A. Create an artificial reef for the fish to live
    B. Make a law to limit the amount of fish caught
    C. Introduce an invasive species to the environment
    D. Release additional fish into the environment

33. Which of the following lists contains the most appropriate equipment for the student to use to find the density of irregular object?
    A. Beaker, balance, scalpel
    B. Test tube, ruler, gloves
    C. Spectroscope, calculator, ruler
    D. Graduated cylinder, balance, calculator

34. Diagrams, photos, charts and tables are used by scientists during an experiment to do which of the following?
    A. Identify the independent and dependent variables
    B. Predict the variables
    C. Test a hypothesis
    D. Record data

35. Which field of study did Newton's research involving laws of motion and gravitation contribute the most scientific understanding?
    A. Biology
    B. Physics
    C. Chemistry
    D. Medical

UNIVERSITY INTERSCHOLASTIC LEAGUE
2020-2021 SCIENCE II
INVITATIONAL TEST

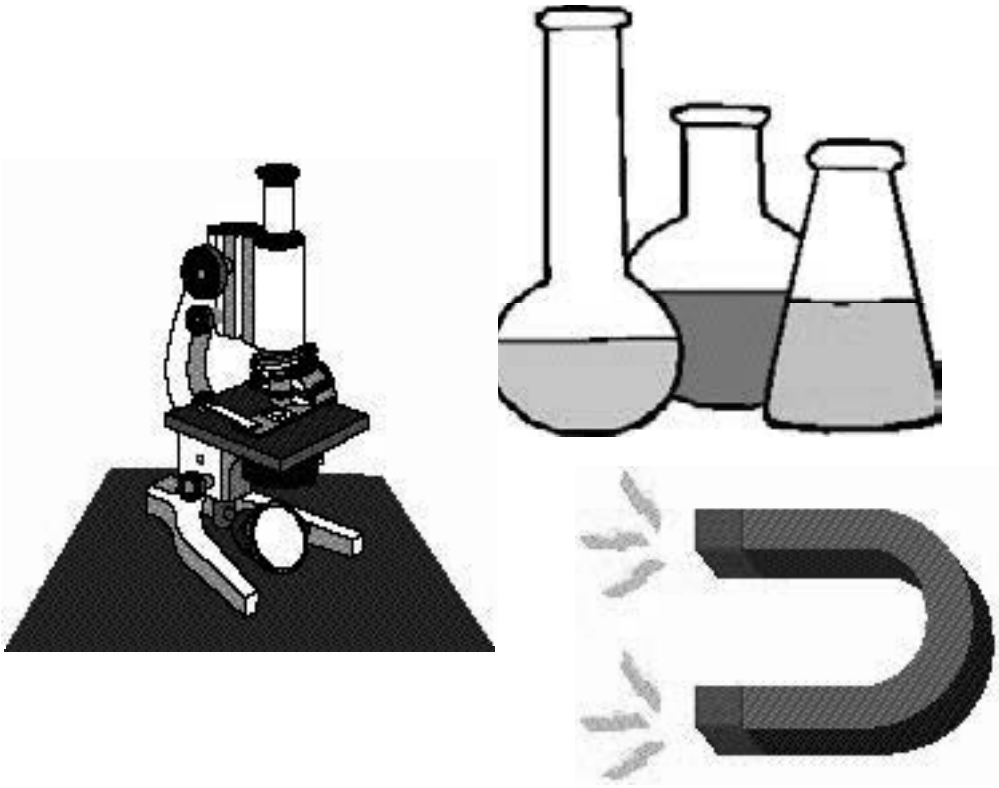
Answer Key

1. B
2. D
3. C
4. B
5. A
6. D
7. B
8. C
9. D
10. B
11. D
12. B
13. C
14. B
15. C
16. C
17. A
18. D
19. A
20. B
21. B
22. C
23. D
24. B
25. D
26. C
27. B
28. C
29. A
30. D
31. D
32. C
33. D
34. D
35. B

FALL/WINTER DISTRICT 2020-2021

A+ ACADEMICS

University Interscholastic League



Science I

DO NOT OPEN TEST
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UNIVERSITY INTERSCHOLATIC LEAGUE
2020-2021 SCIENCE I
FALL/WINTER TEST

1. The SDS for a chemical states that it is a highly volatile substance and is a nose and throat irritant. Which safety procedure should be followed based on the SDS information?
   A. Use substance in minute amounts
   B. Add water to the substance
   C. Use in a ventilated area, such as a fume hood
   D. Store substance in a dark colored container

2. Which statement best describes how a pond and ocean environment compare?
   A. The pond and ocean environments support the same organisms because they are both water.
   B. The pond and ocean environments support different organisms because ocean organisms cannot get over the land to get to the ponds.
   C. The pond and ocean environments support the same organisms, but they will look different because of the type of water.
   D. The pond and ocean environments support different organisms because most saltwater organisms cannot live in freshwater.

3. The lab equipment shown is being used, what task would require these specific tools?

   A. Measuring the area of the hallway
   B. Determine the speed of a rolling skate board
   C. Making an atomic model
   D. Measuring the density of an irregular solid

4. How does secondary succession help restore equilibrium in an area destroyed by a natural disaster?
   A. It increases the number and types of species.
   B. It can bring back species from extinction.
   C. It stops other natural disasters from occurring.
   D. It decreases the rate of evolution.

5. A student breaks a flask during a lab procedure. After telling the teacher, what should be done based on proper lab safety protocols?
   A. Find a new flask
   B. Tell an addition teacher
   C. Find a mop and dust pan
   D. Dispose of broken glass into proper container

6. Which of the following events would most likely cause an ecosystem to have the lowest biodiversity and population sizes five years after the original disaster?
   A. Clearing land for a parking lot
   B. A river floods a field
   C. A forest fire destroys part of a nature preserve
   D. A lava flow creates a new section of an island

7. In what part of the picture is radiant energy from the sun being converted into chemical energy?

   A. Grass
   B. Bird
   C. Worm
   D. Rock

8. Dichotomous keys are NOT based on which of the following?
   A. Physical traits
   B. Structural adaptations
   C. Observable characteristics
   D. Stimuli

9. What does this symbol indicate about a substance?
   A. Can cause injury to skin
   B. Can catch on fire easily
   C. Hazardous to the environment
   D. Harmful to inhale

10. The following seed comes from a Cottonwood tree. Based on the image which of the following is most likely the manner in which this seed is dispersed?
    A. Stick to animals' fur
    B. People planting seeds
    C. Float on water
    D. Transported by the wind

11. What do arrows represent in a food chain?
    A. The size of the organism
    B. Dominance of the organism
    C. The flow of energy
    D. What an organism eats

12. There are many different breeds of horses. Each breed was developed because of specific traits needed or desired by the breeder. One type of horse is a called a Thoroughbred, they are considered "hot-blooded" horses that are known for their agility, speed, and spirit. What kind of work would this animal be expected to do?

    A. Easy for small children to ride
    B. Carry a very heavy load
    C. Run a long distance without tiring
    D. Run very fast in races

13. Which of the following is an unsafe practice during a lab?
    A. Detecting an odor by inhaling repeatedly
    B. Watering a flower without using gloves
    C. Wearing goggles while mixing chemicals
    D. Using a stirring rod to circulate liquids

14. The first set of human teeth develop within the first two years of life. They will keep that set of teeth for a few years until they begin to become loose. They become loose and eventually fall out to make space for a new set of teeth that the person will use for the rest of their life. Based on this information, what is the function of having two different stages of teeth development in a lifetime?

    A. It allows the person time to learn brushing habits that are good before they get their permanent set of teeth.
    B. It allows the person to grow larger teeth in the second stage that they would not be able to have as a baby.
    C. It provides the person extra opportunities to have a full set of teeth in case they lost a tooth as a kid.
    D. It allows the person to try various foods when they are older.

15. An experiment was done to test the effect of ice placed on to a hot metal block. Which tool would be used to measure the transfer of energy between the hot metal block and the ice?
    A. Spring scale
    B. Balance
    C. Thermometer
    D. Spectrometer

16. A class was studying human body systems. Composed of a number of small organs distributed throughout the body, this system coordinates the metabolic activity of body cells by interacting with the nervous system. The class was studying which of the following systems?

    A. Endocrine system
    B. Immune system
    C. Circulatory system
    D. Muscular system

17. A teacher fills a sealable bag with corn syrup, colored beads, and various marbles to model a cell. One problems with this model is that is cannot show which of the following?
    A. The organelles of the cell
    B. The flexibility of the cell
    C. The nucleus of the cell
    D. The absorption of nutrients

18. Seeds are the offspring of plants. If a seed germinates and survives, it will grow to become a mature plant. Given this information, what level of organization describes a seed?
    A. Tissue
    B. Cell
    C. Organism
    D. Organ system

19. Energy stored in food is ___; as it is digested the food releases ___ energy for motion. Correctly complete this statement.
    A. Chemical; thermal
    B. Chemical; mechanical
    C. Radiant; mechanical
    D. Thermal; radiant

20. A restaurant has a large, walk-in refrigerator where food is stored for meals. Which cell organelle has a similar function to the refrigerator?
    A. Vacuole
    B. Nucleus
    C. Chloroplast
    D. Mitochondrion

21. Which of these processes does not describe a physical change in digestion?
    A. Teeth tearing food into smaller pieces
    B. Tongue shaping food as it pushes it into the esophagus
    C. Salvia in mouth breaking down starch
    D. Food being broken down by stomach muscles

22. Which situation shows an example of homeostasis in cells?
    A. A cell is attacked by a virus.
    B. A cell's nucleus sends signals throughout the cell to produce protein.
    C. A cell goes through meiosis.
    D. Water enters a cell via the cell membrane because it is dehydrated.

23. Some animals migrate across Africa in search of resources, such as grass for food. A drought would likely cause a migrating animal to:
    A. Migrate shorter distances
    B. Migrate farther distances
    C. Produce a larger herd
    D. Start eating meat as their primary food source

24. According to cell theory, what do each of the following organisms have in common?

    A. They can all reproduce by spontaneous generation.
    B. Each organism is able to photosynthesize.
    C. Cells are the basic unit of structure for each organism.
    D. They are all made up of the same exact atoms.

25. Which shows an organ applying a force?
    A. Gallbladder squeezing bile into the small intestine
    B. Eye sending signals to the brain
    C. Kidneys filtering
    D. Salvia in the mouth breaking down food

26. Hibernation is a state of inactivity and metabolic depression in endotherms. Hibernation is a characterized by low body-temperature, slow breathing and heart-rate, and low metabolic rate. What is the purpose of hibernation?

    A. To allow organisms to survive hot temperatures
    B. To allow organisms to survive when food is not available
    C. To allow organisms to get needed sleep
    D. To allow organisms to survive cold temperatures

27. Longhorn Cavern in Texas was created when limestone was carved out by running water, making its walls mostly smooth. This process best describes which of the following?
    A. Weathering B. Deposition C. Erosion

28. Which stimulus is most likely to cause an animal to respond by increasing its internal body temperature above a normal level?
    A. Over exposure to cold external temperatures
    B. Digestion of food
    C. An infection of the cells in the stomach
    D. An increased heart rate after exercising

29. The Texas Water Development Board states groundwater is used about 80% for which of the following activities?
    A. Irrigating crops
    B. Supplying residence
    C. Water supply for swimming areas

30. A child grows to be 6'1", a similar height as its parent who is 6'3". Which of the following best describes why this happens?
    A. Genetic instructions for height were passed from the parent to the child.
    B. The parent and child live together and environmental factors influenced the height.
    C. The parent and child have the same diet, causing them to reach similar heights.
    D. There is no direct link between the parent's height and the child's height.

31. Where would the greatest amount of diversity of an organism occur?
    A. In the center of a pond
    B. Next to concrete
    C. Freshly plowed field
    D. Near a stream with rocks, flowing water, & vegetation

32. In sexual reproduction, how many genes does an offspring receive for each trait?
    A. 0 C. 2
    B. 1 D. 3

33. In recent years, there have been numerous agencies planning manned trips to Mars. Why is traveling to Mars so difficult?
    A. Temperatures in space
    B. Distance between planets
    C. No landing runway on Mars
    D. Erratic motion of planets

34. A new litter of puppies was born. The puppies in the litter do not all look the same. Which part of the cell contains the information that controls the traits of these dogs?
    A. Nucleus
    B. Ribosomes
    C. Mitochondria
    D. Cell Wall

35. The End of Nature is a book written by Bill McKibben, published in 1989. It has been called the first book on global warming written for a general audience. In the book he describes nature as a force previously independent of human beings but now directly affected by the actions of people. Which of the following outcomes was MOST likely a resulting effect on society after reading this book?
    A. A rapid increase in the number of species
    B. The development of a public awareness of the impact on the environment
    C. An increase in the number of companies production
    D. Merging of the governmental agencies

UNIVERSITY INTERSCHOLASTIC LEAGUE
2020-2021 SCIENCE I
FALL/WINTER TEST

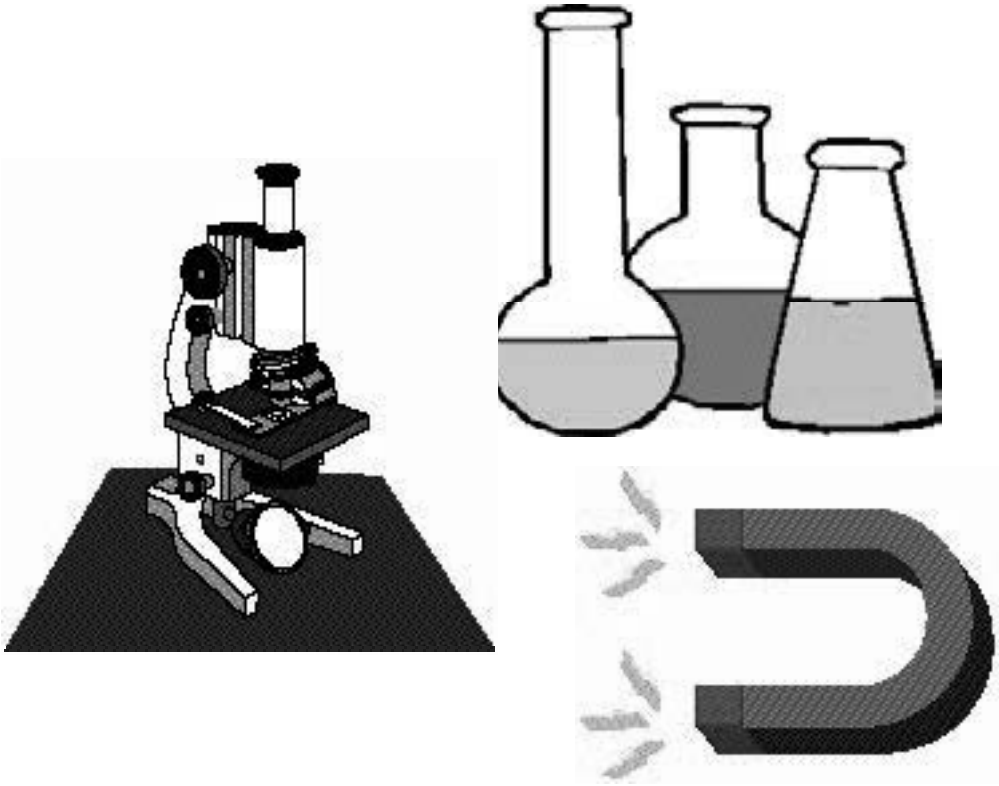
Answer Key

1. C
2. D
3. B
4. A
5. D
6. D
7. A
8. D
9. B
10. D
11. C
12. D
13. A
14. B
15. C
16. A
17. D
18. C
19. B
20. A
21. C
22. D
23. B
24. C
25. A
26. D
27. C
28. C
29. A
30. A
31. D
32. C
33. B
34. A
35. B

FALL/WINTER DISTRICT 2020-2021

A+ ACADEMICS

University Interscholastic League



Science II

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2020-2021 SCIENCE II
FALL/WINTER TEST

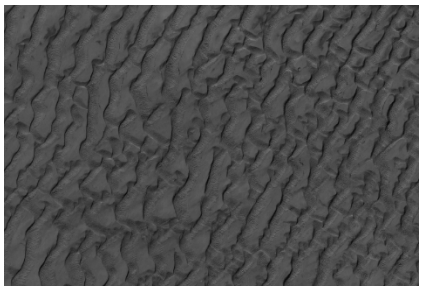
1. Which activity would require this safety symbol shown?

   A. Determining the mass of a density cube
   B. Transferring a metal
   C. Making a model rocket
   D. Determining the volume of a liquid

2. A convergent boundary is formed when two tectonic plates meet and push against each other. What type of landform would occur at this type of boundary?
   A. Canyon
   B. Coastline
   C. Mountain
   D. Plains

3. A scientist is comparing the average snow fall in a year for New York City and Albany. Which graph is the best to use to represent this data?
   A. Single line graph
   B. Double line graph
   C. Single bar graph
   D. Double bar graph

4. This satellite picture shows sand dunes of a desert. The same area was photographed weeks before shows that the shape and location of some sand dunes have changed. Which of these most likely caused the changes in the dunes?



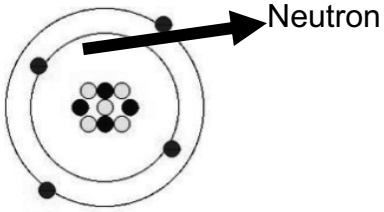
   A. Ocean waves
   B. Flowing rivers
   C. Blowing wind
   D. Crustal uplift

5. Which best describes a proton?
   A. No charge & the same mass as an electron
   B. Positive charge & more mass than an electron
   C. Positive charge & more mass than a neutron
   D. Negative charge & same mass than a neutron

6. Our yellow sun, a main-sequence star, has radiated energy into space. The energy that reaches earth has been responsible for which of the following?
   A. Creating electricity
   B. Influencing the ocean's tides
   C. The limited plant life found at the equator
   D. Convection current within earth's atmosphere

7. If a boat is traveling forward at 9 m/s and the current of the river, that acts opposite of the boat, changes from 3.5 m/s to 2.25 m/s; how does this affect the boat?
   A. The boat will move more slowly
   B. The boat will experience no change in motion
   C. The boat will move faster
   D. The boat comes to a complete stop

8. What element is represented in the illustration?
   A. Li
   B. Ne
   C. Be
   D. He



9. The term “jet stream” is often used by meteorologists to describe which of the following statements—
   A. Pressure exerted by the atmosphere at a given point
   B. Narrow bands of strong wind in the upper levels of the atmosphere
   C. Intense storm that originates in the tropics, forming in a single, warm air mass
   D. Temperature to which air must be cooled for condensation to take place

10. Which group is made from reactive metals?
   A. 1
   B. 7
   C. 17
   D. 18

11. The western region of California has mild temperatures with relatively small changes in temperature between daytime and nighttime. Which of these is most responsible for keeping the temperature range small?
   A. Daily high winds
   B. Frequent cool fronts
   C. Heat from deserts
   D. Moisture from the ocean

12. What is the major difference between speed and velocity?

   A. Velocity is calculated as distance over time; speed is calculated as velocity over time
   B. Velocity has a direction associated with it; speed has no direction associate with it
   C. Speed has a direction associated with it; velocity has no direction associate with it
   D. Speed is calculated as distance over time; velocity is calculated as speed over time

13. Decomposers break down materials in a compost pile. When they do this, they release carbon dioxide into the atmosphere and nitrogen to the soil. Which of the following organisms would most likely be decomposers?
   A. Bacteria
   B. Antelope
   C. Plants
   D. Cougar

14. How many atoms of hydrogen are in glycine?

A. 2 B. 5 C. 9 D. 10

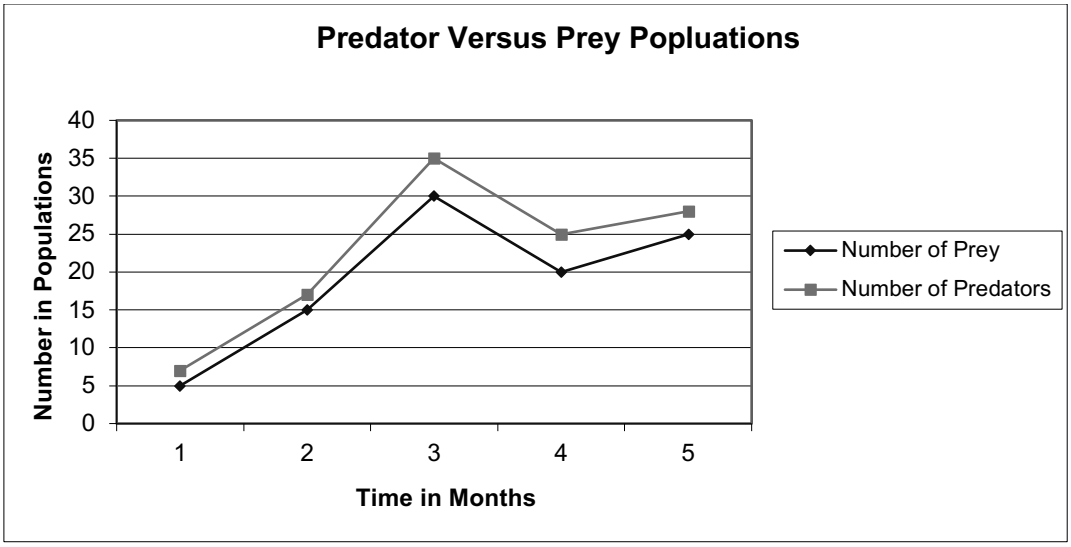
15. Which of the following is the most likely affected by seasonal environmental changes?
    A. Number of peaches on a tree
    B. Growth height of young elephant
    C. Length of horns on a bull
    D. Number of wings on a dragonfly

16. A toddler collects rocks from the backyard. Which would be a chemical property of the rocks collected?
    A. Color of the rock
    B. Texture
    C. Bubbling when lemon juice is spilled on rock
    D. The rock is easily scratched with sandpaper

17. When offshore oil rigs are finished drilling, the platforms can be sunk into the ocean. If this occurs, how will this impact organisms in the immediate area?
    A. The platform destroys all organisms in the area.
    B. The platform releases chemicals into the area.
    C. The platform is used for future oil research.
    D. The platform provides a habitat for organisms.

18. Which of the following has the greatest mass?
    A. Solar system
    B. Nebula
    C. Galaxy
    D. Planet

(continued on next page)

19. 

Based on the data above, what can be concluded about the predator prey relationship?
A. they have an inverse relationship
B. they have a weak relationship
C. they have no relationship
D. they have a direct relationship

20. To calculate the tidal force, which of the following statements is true?
    A. The moon's gravity pull in a specific location plus the moon's gravity pull in a specific location
    B. The moon's gravity pull in a specific location minus the moon's gravity pull in a specific location
    C. The moon's gravity pull in a specific location plus the moon's average gravitational pull over the entire earth
    D. The moon's gravity pull in a specific location minus the moon's average gravitational pull over the entire earth

21. During an experiment to test the thermal absorption rates of different pigmented materials, a white cloth was placed under a fluorescent lamp and a black cloth was placed under an incandescent lamp. A thermometer was placed under each cloth and the temperature was recorded every minute for 25 minutes. When the results were presented, it was pointed out that the experiment contained a flaw. What is the flaw?
    A. the researcher did not have a control variable in the experiment
    B. the researcher did not use the proper lab equipment to obtain the data
    C. the researcher should have used the cloths made of the same pigment
    D. the researcher did not have a dependent variable in the experiment

22. A rocket is launched to the moon. If no outside force is applied once the rocket reaches outer space, what happens to the speed as it travels in outer space?
    A. It will speed up
    B. It will slow down
    C. It will remain constant
    D. It will fluctuate

23. Dot diagrams, like the one shown below, are used to represent:

A. Atomic numbers
B. Atomic mass
C. Isotopes
D. Valence electrons

24. If the earth's axis was not tilted in relation to its plane of orbit, which of the following would most likely occur?
A. The equator would have two seasons
B. There would be no distinct seasons
C. Night in the northern hemisphere would be longer than the southern hemisphere
D. Summer in the northern hemisphere would be longer than the southern hemisphere

25. In a quarter an hour, a bicyclist travels 20 km. What is the cyclist average speed?
A. 40 km
B. 80 km
C. 40 km/hr
D. 80 km/hr

26. The sun is to __ as Mars is to Venus.
A. Tau Ceti
B. Betelgeuse
C. Rigel
D. Sirius

27. A mixture of salt water needs to be separated. Which piece of equipment would be best to separate this mixture?
A. Funnel and filter paper
B. Magnet
C. Bunsen burner
D. Stirring rod

28. How much of the lunar surface receives sunlight at one specific instant?
A. One half
B. One third
C. One fourth
D. All of it

29. Which of the following units would be the most appropriate to measure the height of a newly sprouted plant?
A. m
B. L
C. mL
D. mm

30. Using the electromagnetic spectrum, astronomers can determine all of the following characteristics of a distant star except which of the following?
A. Its chemical composition
B. The organisms present
C. Its temperature
D. Its density

31. Thomson depicted his model of the atom using a plum pudding reference. The model of the atom has undergone many changes since then. What is the best scientific reason for these changes in the model?
    A. Computer generated graphics
    B. People are more open to changes
    C. Modifying ideas based on discoveries
    D. People want the truth

32. The plate tectonic theory can best explain which of the following?
    A. Earthquakes
    B. Mountain construction
    C. Volcanic activity
    D. Fossil record

33. Scientific models represent objects, systems, or events and are used as a toll to understand the world around us. Which of the following is not an example of a scientific model?
    A. Model of Saturn
    B. Prototype of a rocket
    C. Data table
    D. Dinosaur fossil replica

34. Which of the following shows a system for identifying hazards associated with various materials?
    A. Biohazard symbols
    B. Hazard to environment symbols
    C. NFPA label
    D. SDS label

35. After the energy from the sun has reached the Earth, thermal energy always moves from _ to _ areas naturally.
    A. Hot; cold
    B. Warm; hot
    C. Cold; cool
    D. cold; hot

UNIVERSITY INTERSCHOLASTIC LEAGUE
2020 – 2021 SCIENCE II
FALL/WINTER TEST

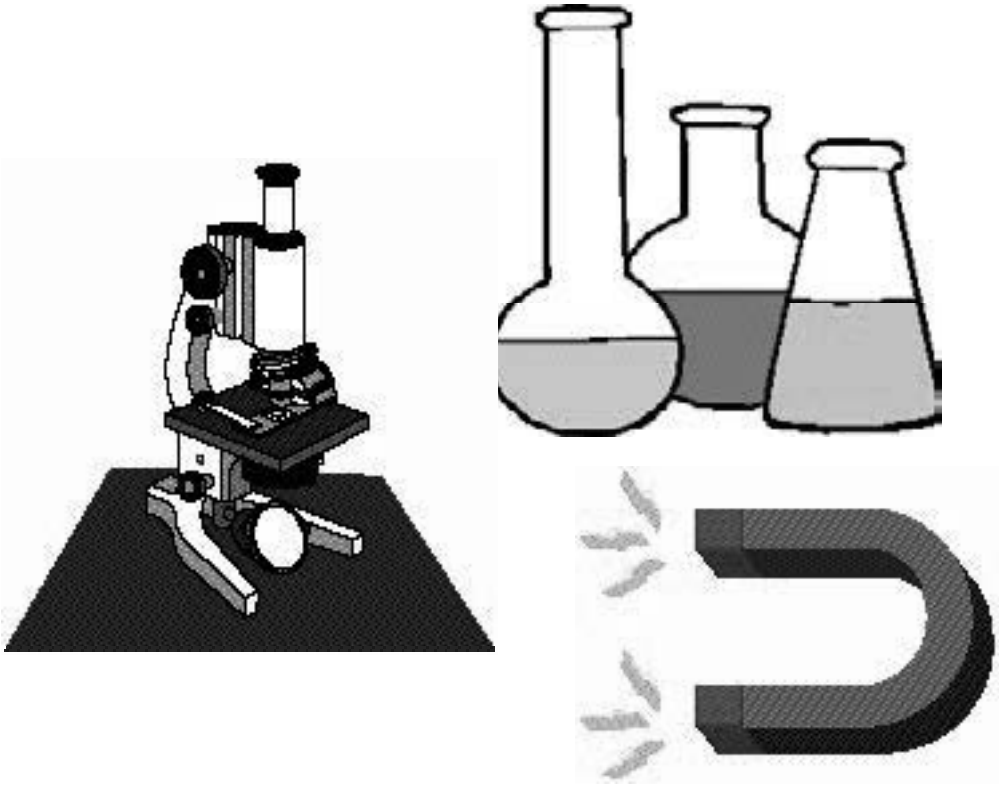
Answer Key

1. C
2. C
3. B
4. C
5. B
6. D
7. C
8. C
9. B
10. A
11. D
12. B
13. A
14. B
15. A
16. C
17. D
18. C
19. D
20. D
21. A
22. C
23. D
24. B
25. D
26. A
27. C
28. A
29. D
30. B
31. C
32. D
33. C
34. C
35. A

SPRING DISTRICT 2020-2021

A+ ACADEMICS

University Interscholastic League



Science I

DO NOT OPEN TEST
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UNIVERSITY INTERSCHOLATIC LEAGUE
2020-2021 SCIENCE I
SPRING TEST

1. Which of these converts radiant energy to chemical energy?
   A. The bulb of a flashlight
   B. The battery of a phone
   C. The leaf of a vine
   D. The screen of a television

2. Which of the following statements describe the best way to heat a test tube over a Bunsen burner flame?
   A. Directly hold the test tube at a slight angle above the flame
   B. Put on a rubber glove and then directly hold the test tube at a slight angle above the flame
   C. Put the test tube in a test tube rack and then directly hold the test tube rack at a slight angle above the flame
   D. Put the test tube in a test tube holder and then directly hold the test tube at a slight angle above the flame

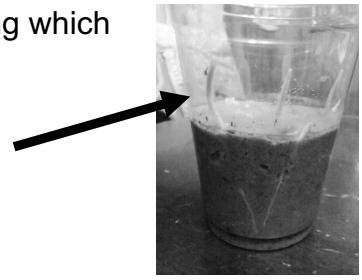
3. A non-native organism is introduced to a diverse climax community. If the non-native organism has no predators, what short term effect will non-native organism have on a community?
   A. The number of native organisms remain constant
   B. The number of native organisms will decrease
   C. The non-native organisms will become extinct
   D. The non-native organisms will develop new predators

4. Phytoplankton consists mainly of single-celled algae. They live in aquatic environments and are autotrophs. What is the role of phytoplankton in this situation?
   A. Consumer
   B. Decomposer
   C. Parasite
   D. Producer

5. Which of the following is true about ecological succession?
   A. Succession leads to the equilibrium in an ecosystem
   B. Succession prevents ecosystems from reaching equilibrium
   C. There is no relationship
   D. Succession & equilibrium are the same thing

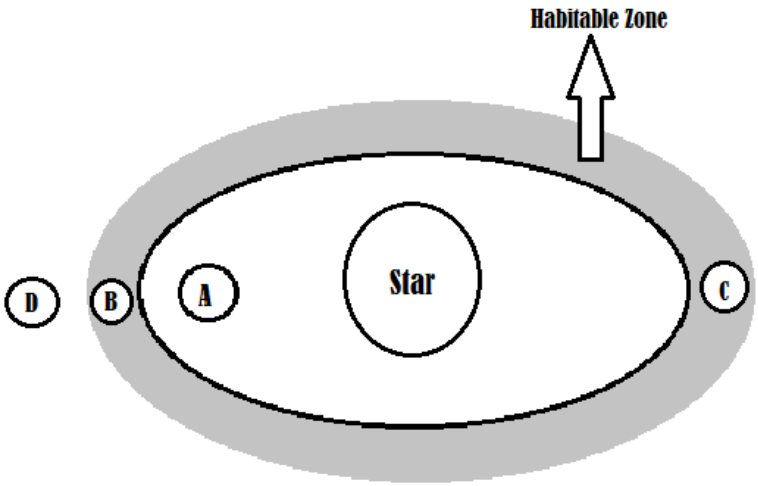
6. When sugar is dissolved in a cup of hot water, the resulting solution would represent which of the following —
   A. chemical, irreversible change
   B. physical, irreversible change
   C. chemical, reversible change
   D. physical, reversible change

7. The roots of the plant in the image to the right are exhibiting which behavior?
   A. Autotropism
   B. Hydrotropism
   C. Geotropism
   D. Phototropism



8. A man pours hot coffee into two mugs are composed of different materials. The man notices that one mug keeps hot coffee warmer than the other mug and designs an experiment based on the observations. Which of the following questions should the man ask when designing the experiment?
   A. What is the best temperature to drink hot coffee?
   B. What brand of coffee stays warm the longest?
   C. What mug will hold the greatest volume of hot coffee?
   D. What type of mug material is the best for keeping liquids warm?

9. Which planet would most likely be a location where life could be observed based on the information provided?



Planet	Oxygen	Water
A	Yes	Yes
B	Yes	No
C	Yes	Yes
D	No	Yes

   A. A B. B C. C D. D

10. What provides the body with the energy it needs for growth, movement, response, and repair?
   A. Fiber
   B. Minerals
   C. Alcohol
   D. Sugar

11. A scientist wants to classify organisms from a specific biome using their name, as well as determining if they are extinct, endangered, or threatened. The most logical way to organize this information would be to use which of the following?
   A. Bar graph
   B. Data table
   C. Line graph
   D. Tally marks

12. What type of dispersal is mostly likely used by this organism?
    A. Animal
    B. Wind
    C. Water
    D. Gravity

13. Which of the following events would most likely to cause an environmental disturbance in an archipelago?
    A. Earthquake
    B. Volcanic eruption
    C. Thunderstorm
    D. Fire caused by lightning strike

14. Blubber in artic animals is an internal structural adaptation that allows animals to be successful in the environment. What function does blubber perform?
    A. It makes the animal look larger to intimidate predators
    B. Allows for better balance
    C. Provides more friction
    D. It protects the animal from freezing temperature

15. The Palo Duro Canyon is located in the panhandle of Texas.

    What most likely created the riverbed?
    A. Glaciers
    B. Plate collisions
    C. Water erosion
    D. Volcanic activity

16. Which organism has small vacuoles?
    A. Plants B. Animals C. Virus

17. A man was changing the oil in his truck. He then dumped the used oil around the fence in his backyard to prevent weeds from growing. What the man didn't know was he was actually hurting the environment because of which of the following?
    A. The oil rots the base of the fence
    B. The oil goes deep into the soil and can pollute the groundwater
    C. The oil kills weeds and they are an important part of the environment
    D. The oil attracts more harmful insects

18. The cell wall is most similar to which body system?
    A. Nervous
    B. Digestive
    C. Respiratory
    D. Integumentary

19. A scientist is creating a graphic organizer to explain the result of an experiment that included offspring from sexual reproduction. What information would be incorrect if it was placed in the scientist's graphic organizer?
    A. Requires two cells from different parents
    B. Creates a genetically uniform offspring
    C. Offspring have a better chance for survival
    D. Offspring have increased resistance to disease

20. Which of the following characteristics of the planet Saturn most likely makes it impossible for life to exist?
    A. 9 times wider than Earth
    B. Has 53 confirmed moons
    C. Extreme temperature of -178 degrees Celsius
    D. Rotational period of 11 hours

21. Humans have selectively breed canines for specific jobs. Which dog is most likely to carry heavy weights in an environment that is cold?

A. 	B. 
C. 	D. 

22. Several agencies are wanting to send a manned craft to explore Mars. Which of the following would NOT be a problem for astronauts when they got to Mars?
    A. The ability to produce food
    B. Radiant energy for solar panels
    C. Amount of oxygen in the atmosphere
    D. Amount of liquid water present on the planet

23. Which of the following do rattlesnakes do when they feel threatened?
    A. Rattle their tail and hiss
    B. Make their hair stand up
    C. Close their eyes
    D. Slow their breathing

24. Despite its having limitations, what are some advantages of using the following model when learning about our solar system?

    A. Accurately demonstrates the planets orbit the sun in elliptical paths.
    B. Accurately demonstrates planetary order and general appearance.
    C. Shows relative distances between objects in our solar system.
    D. Shows how the sun's radiant energy makes some planets too hot for life to exist.

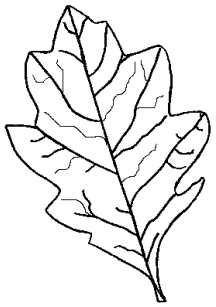
25. Which is not an example of heredity in humans?
    A. Height
    B. Eye color
    C. Spoken language
    D. Freckles

26. Which of the following is least likely to make an animal vomit?
    A. An infection in the stomach
    B. Consuming large amounts of water
    C. A toxin in the body
    D. Feeling cold after swimming in cold water

27. In sexual reproduction, how many genes does an offspring get for each trait?
    A. 0 B. 1 C. 2 D. 4

28. Theophrastus is known as "The Father of ____" because of two seminal works concerning autotrophic organisms. To which field of study has Theophrastus work contributed the most scientific understanding?
    A. botany
    B. genetics
    C. medicine
    D. zoology

29. Use the Dichotomous key to identify the leaf shown below:



1a	Leaf edge has no teeth, waves, or lobes	Go to 2
1b	Leaf edge has teeth, waves, or lobes	Go to 3
2a	Leaf has bristle at the tip	Shingle Oak
2b	Leaf has no bristles at the tip	Go to 4
3a	Leaf edge is toothed	Lombardy Poplar
3b	Leaf edge has waves or lobes	Go to 5
4a	Leaf is heart shaped	Red Bud
4b	Leaf is not heart shaped	Live Oak
5a	Leaf edge has lobes	English Oak
5b	Leaf edge has waves	Chestnut Oak

A. Shingle oak
B. Lombardy polar
C. Red bud
D. Live oak
E. English oak

30. Which of the following is least likely to affect the phenotypes of an organism?
A. Nucleus
B. Vacuole
C. Genes
D. Chromosomes

31. Ovaries produce eggs and hormones. What body system does this best relate to?
A. Integumentary
B. Excretory and muscular
C. Endocrine and reproductive
D. Nervous and respiratory

32. Blood consists of red blood cells and white blood cells. Blood is mostly likely a
A. Tissue
B. Organ
C. Organ system
D. Cell

33. Based on the cell theory, what do the following organisms have in common?

A. Reproduce spontaneously
B. Cells are the basic unit of structure
C. Organisms can photosynthesize
D. Made of all the same atoms

34. Which activity would require the safety symbol for a sharp object?
A. Determining the mass of a density cube
B. Transferring a metal
C. Making a model rocket
D. Determining the volume of a liquid

35. Which lab investigation requires knowing the location of the fire extinguisher and the fire blanket?
A. When investigating the effectiveness of various types of antibacterial wipes
B. When testing for the presence of sugar using benedicts solution, Bunsen burner, beaker, and test tubes
C. While dissecting a sheep eye using gloves, scalpel, probes, and pins
D. While comparing the rate of mold growing on oranges

UNIVERSITY INTERSCHOLASTIC LEAGUE
2020-2021 SCIENCE I
SPRING TEST

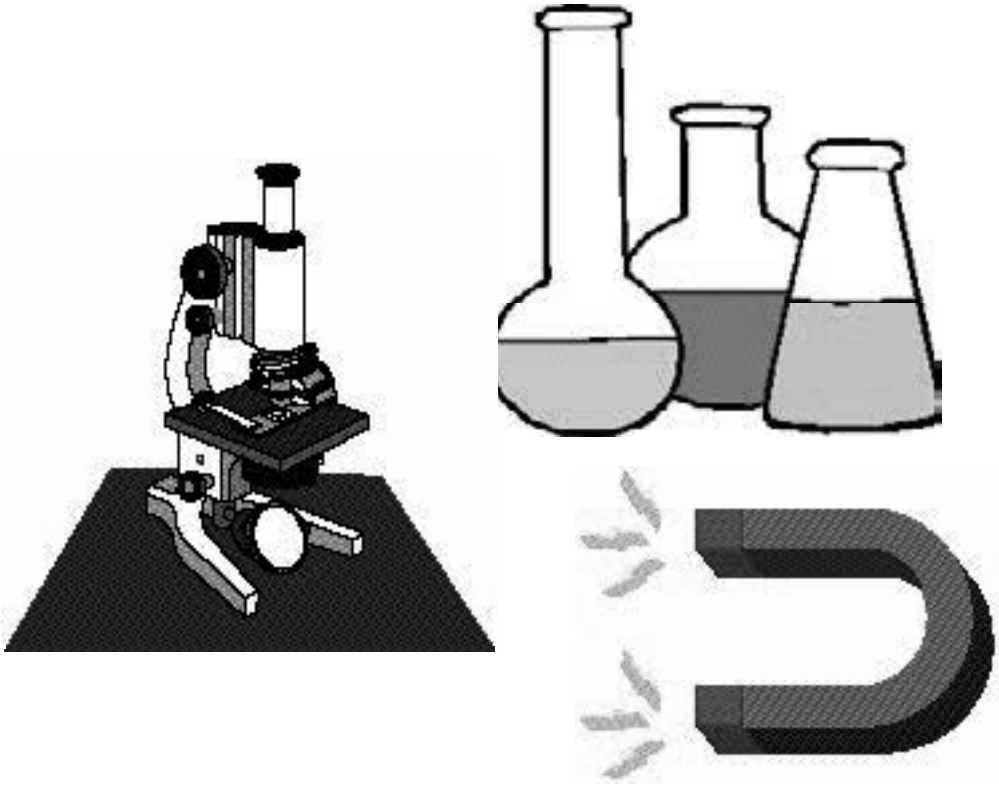
Answer Key

1. C
2. D
3. B
4. D
5. A
6. D
7. C
8. D
9. C
10. D
11. B
12. B
13. B
14. D
15. C
16. B
17. B
18. D
19. B
20. C
21. B
22. B
23. A
24. B
25. C
26. D
27. C
28. A
29. D
30. B
31. C
32. A
33. B
34. C
35. B

SPRING DISTRICT 2020-2021

A+ ACADEMICS

University Interscholastic League



Science II

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UNIVERSITY INTERSCHOLATIC LEAGUE
2020-2021 SCIENCE II
SPRING TEST

1. Scientists discovered rocks collected from West Texas and rocks collected from mountains in Antarctica were exactly the same age. If additional research showed that the rocks were geologically the same, this discovery would provide evidence of which of the following?
   A. Coastal erosion
   B. Plate tectonics
   C. Atmospheric currents
   D. Glacial melting

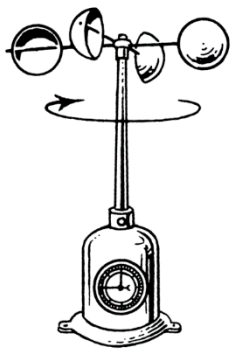
2. Which of the following best supports the Big Bang Theory?
   A. Various shapes of galaxies
   B. Speed of light
   C. Red & blue shifts of light from stars
   D. The motion of planets in orbit

3. In the Pacific Ocean, islands were formed because of which of the following?
   A. The sea floor spread apart and sediments congregated due to ocean currents.
   B. The turgor pressure of the water causes magma to rise to the surface.
   C. The sea floor spreads apart and magma is push up to the surface.
   D. Tectonic plates are pushed together, forming underwater mountain ranges.

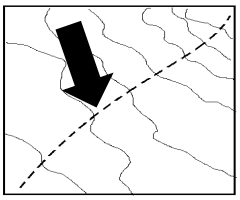
4. Scientists observe that when continental plates & oceanic plates collide, the oceanic plate is forced below the continental pate. This might be because –
   A. The different densities of the plates
   B. The different masses of the plates
   C. Convection current
   D. The width of the plates

5. A student reads a topographic map and determines the highest elevation to be 1800 meters and the lowest elevation to be 1120 meters. Based on this information, what is the difference between these elevations?
   A. 2920 m
   B. 680 m
   C. 340 m
   D. 1800 m

6. How would the motion of an anemometer be changed if the amount of radiant energy that reached the Earth's atmosphere was to increase?
   A. It would spin in the opposite direction
   B. It would spin faster
   C. It would spin slower
   D. It would remain constant



7. What does the dashed line on the topographic map likely represent?



   A. Running trail
   B. Change in rock density
   C. Stream
   D. Vegetation line

8. Which of the following is an adaptation for plants in a rainforest that need to obtain sunlight in order to photosynthesize?
   A. Vines wrapping around tree trunks
   B. Vibrant colored flowers
   C. Shallow root system
   D. Small leaves

9. Which of the following form of energy causes water to evaporate?
   A. Chemical
   B. Radiant
   C. Electrical
   D. Potential

10. This type of weather front usually brings a decrease in temperature, clearing skies, & a sharp change in the wind direction. Which of the following best describes this scenario?
   A. Directional front
   B. Stationary front
   C. Warm front
   D. Cold front

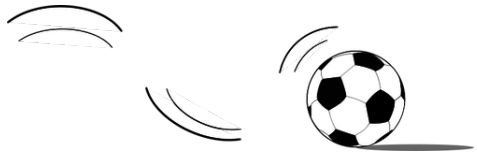
11. Changes in the polar ice caps would most likely indicate changes in what of the following?
   A. Solar flares
   B. Earth's climate
   C. Tectonic plates
   D. Biodiversity

12. La Niña represents periods of below average sea surface temperatures across the equatorial Pacific Ocean. What is most likely to occur due to these specific conditions?
   A. Wetter than average conditions in the U.S. gulf coast
   B. Increase in severe storms originating in the Pacific Ocean
   C. Decrease in hurricanes originating in the Pacific Ocean
   D. Colder temperatures in the winter for the southeast

13. Ocean currents move warm and cold water throughout the oceans, affecting weather systems and climates. Where do cold ocean currents originate?
   A. Close to the poles
   B. Close to the equator
   C. Close to the continents
   D. Near the middle of oceans

14. Which relationship is most like dogs and ticks?
   A. Nitrogen-fixing bacteria and clover
   B. Athlete’s foot fungus and humans
   C. Bees and colorful flowers
   D. Deer and cougar

15. A force acts on a soccer ball for four seconds causing it to accelerate. If the ball is replaced with a similar ball with four times the mass and the same force is applied for the same amount of time, the acceleration of the similar ball will now be –



A. One fourth the value
B. One half the value
C. Twice the value
D. Four times the value

16. Which tool would be used to determine elements that are present in stars in a distant galaxy?
A. Telescope
B. Spectroscope
C. Microscope
D. Psychrometer

17. Large forest fires have become common in parts of United States in the past few years. The forest ecosystem is changed by this. Which of the following is also a result of a large forest fire?
A. Carbon dioxide in the atmosphere decreases.
B. Biodiversity increase.
C. Mudslides can cover roads and river valleys after rains.
D. Soil becomes less fertile.

18. It has been suggested that student misbehaviors are more common during a full moon than other times of the month. What could be done to test this hypothesis?

A. Observe the behavior during a full moon & create categories for behaviors
B. Create a survey
C. Ask students when they misbehave the most
D. Look a discipline records from previous years & compare with time of full moon

19. The world's coasts are being populated at a very rapid rate. In the United States, counties directly on the shoreline constitute less than 10 percent of the total land area, but account for 39 percent of the total population. Coastal areas are substantially more crowded than the U.S. as a whole, and population density in coastal areas will continue to increase in the future. In fact, the population density of coastal shoreline counties is over six times greater than the corresponding inland counties and this number continues to rise. Coastal areas are also the most visited by tourists across the globe. Which of the following threats to the ocean is most likely NOT caused by human actions?
A. Increased pollution of marine environments
B. Damaged coral reefs
C. Higher hurricane wind speed
D. Damaged sea turtle nesting sites

20. What is the electrical charge of the nucleus of an atom that has 12 protons, 13 neutrons, and 11 electrons?
A. -11
B. +12
C. -12
D. +11

21. A chemist is identifying the elements present in an unknown sample. What characteristic of an element's atoms will help the chemist determine the element's identity?
    A. The number of protons
    B. The number of neutrons
    C. The number of valence electrons
    D. The number of electrons

22. If a lab requires that students have goggles, a graduated cylinder, and a thermometer; what task might they be performing?
    A. Calculating density
    B. Measuring volume & temperature of a liquid
    C. Measuring mass & temperature of a solid
    D. Determining the meniscus

23. Which of the following statements best describes the elements located in Group 18?
    A. Chemically stable and liquid at room temperature.
    B. Have eight valence electrons and are flammable.
    C. Magnetic and boil at low temperatures.
    D. Gaseous at room temperature and chemically stable.

24. In a mountain range there is a point called a tree line, in which trees do not normally grow near the top of the mountain. What environmental condition would most likely prevent trees from growing in this area?
    A. No oxygen is present
    B. The air pressure it to high
    C. The temperature is to low
    D. There is no sunlight

25. Which of the following contains the greatest number of elements?
    A. O_2
    B. CH_4
    C. NaCl
    D. HNO_2

26. Which of the following would you not do to minimize the impact of human activities on the world?
    A. Reusing items
    B. Renovate all housing on a university campus
    C. Recycle
    D. Reduce consumption

27. Coal is comprised of carbon and hydrocarbons. When coal is burned in the presence of oxygen it produces carbon dioxide. Which of these is the most likely evidence that a chemical reaction has occurred when coal burns?
    A. The size and shape of the coal changes.
    B. Oxygen is present.
    C. A new substance is produced.
    D. Coal is made up of multiple elements.

28. Which of the following is an alkaline earth metal?
    A. Potassium
    B. Barium
    C. Aluminum
    D. Silver

29. When did Newton first propose his Laws of Motion?

A. During World War I
B. After the Civil War
C. Approximately 300 years ago
D. After humans orbited the Earth

30. A student uses a warped meter stick to take measurements in an experiment. Which of the following occurred when the student introduced the warped meter stick into the experiment?
A. Method error
B. Instrumental error
C. Human error
D. Estimation error

31. A leaf fell from a tree branch. Which of these bests describes why the leaf fell in a crooked path instead of straight down?
A. Objects with irregular shapes always fall in straight lines.
B. Once the leaf fell, it continued moving in one direction because the forces were equal.
C. Air resistance and gravity applied changing and unbalanced forces to the leaf.
D. The force of the air on the leaf was more than the force of gravity.

32. Light from moving objects will appear to have different wavelengths depending on the relative motion of the source and the observer. An astronomer discovers two stars. Both stars appear to be red, but Star A appears a darker red. Which of the following can be concluded?
A. Star A is moving towards the Earth
B. Star A is moving away from Earth faster than Star B
C. Star B is moving away from Earth and Star A is moving towards it
D. Both Star A and B are moving towards Earth at similar velocities

33. Speed is a scalar type of measurement and velocity is a vector type measurement. What is the main difference between scalar and vector measurements?
A. Scalar measurements include a direction
B. Vector measurements include a direction
C. Neither scalar nor vector measurements include a direction
D. Both scalar and vector measurements include a direction

34. Each of these is an example of how research has changed scientific understanding except:
A. Classification of living things now includes six kingdoms instead of five
B. Protons and electrons are now known to be made of smaller particles of matter
C. The metric system is now used around the world instead of other less precise systems
D. Heat, which was once thought to be fluid, now is known as a form of energy.

35. A Safety Data Sheet for a alcohol substance has the following information:

Flash Point: 12 °C TO 16 °C

Based on this information it should be stored how?
A. Contained inside a brown glass bottle
B. Away from open flames
C. Inside a freezer
D. Packed inside a box of cat litter

UNIVERSITY INTERSCHOLASTIC LEAGUE
2020-2021 SCIENCE II
SPRING TEST

Answer Key

1. B
2. C
3. C
4. A
5. B
6. B
7. C
8. A
9. B
10. D
11. B
12. C
13. A
14. B
15. A
16. B
17. C
18. D
19. C
20. B
21. A
22. B
23. D
24. C
25. D
26. B
27. C
28. B
29. C
30. B
31. C
32. B
33. B
34. C
35. B

CONTESTANT NUMBER:

FOR GRADER USE ONLY Score Test Below: _____ Initials_____ _____ Initials_____ **Papers contending to place:** _____ Initials_____	**University Interscholastic League** **A+ Social Studies Contest • Answer Sheet**

Write your contestant number in the upper right corner, and circle your grade below.

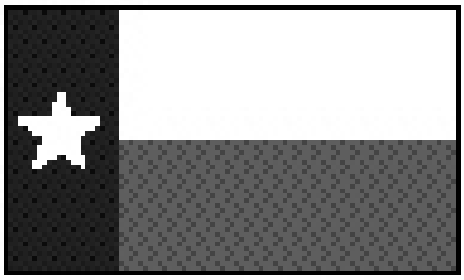
Circle Grade Level: 5 6 7 8

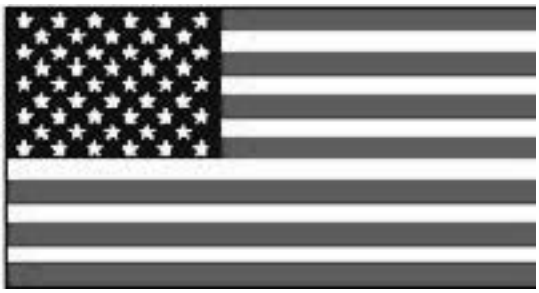
1.	**A**	**B**	**C**	**D**	**21.**	**A**	**B**	**C**	**D**
2.	**A**	**B**	**C**	**D**	**22.**	**A**	**B**	**C**	**D**
3.	**A**	**B**	**C**	**D**	**23.**	**A**	**B**	**C**	**D**
4.	**A**	**B**	**C**	**D**	**24.**	**A**	**B**	**C**	**D**
5.	**A**	**B**	**C**	**D**	**25.**	**A**	**B**	**C**	**D**
6.	**A**	**B**	**C**	**D**	**26.**	**A**	**B**	**C**	**D**
7.	**A**	**B**	**C**	**D**	**27.**	**A**	**B**	**C**	**D**
8.	**A**	**B**	**C**	**D**	**28.**	**A**	**B**	**C**	**D**
9.	**A**	**B**	**C**	**D**	**29.**	**A**	**B**	**C**	**D**
10.	**A**	**B**	**C**	**D**	**30.**	**A**	**B**	**C**	**D**
11.	**A**	**B**	**C**	**D**	**31.**	**A**	**B**	**C**	**D**
12.	**A**	**B**	**C**	**D**	**32.**	**A**	**B**	**C**	**D**
13.	**A**	**B**	**C**	**D**	**33.**	**A**	**B**	**C**	**D**
14.	**A**	**B**	**C**	**D**	**34.**	**A**	**B**	**C**	**D**
15.	**A**	**B**	**C**	**D**	**35.**	**A**	**B**	**C**	**D**
16.	**A**	**B**	**C**	**D**	**36.**	**A**	**B**	**C**	**D**
17.	**A**	**B**	**C**	**D**	**37.**	**A**	**B**	**C**	**D**
18.	**A**	**B**	**C**	**D**	**38.**	**A**	**B**	**C**	**D**
19.	**A**	**B**	**C**	**D**	**39.**	**A**	**B**	**C**	**D**
20.	**A**	**B**	**C**	**D**	**40.**	**A**	**B**	**C**	**D**

INVITATIONAL 2020-2021

A+ ACADEMICS

University Interscholastic League





Social Studies

grades 7 & 8

DO NOT OPEN TEST
UNTIL TOLD TO DO SO

UNIVERSITY INTERSCHOLASTIC LEAGUE
2020-21 A+ SOCIAL STUDIES
INVITATIONAL TEST — GRADES 7 & 8

1. Which title finishes the chart?

?

Banks were forced to close because of too many loans people could not repay
People bought less
Businesses began to lay off workers

a. Era of Good Feelings
b. Great Awakening
c. Cold War
d. Great Depression

2. Who was a 1930s era musician that offered a new kind of dance music called western swing?
a. O. Henry
b. Van Cliburn
c. Bob Wills
d. Larry McMurtry

3. What event is depicted in this 1935 photo that ruined crops and killed thousands of cattle?
a. Calgary Stampede
b. Dust Bowl
c. Galveston Hurricane
d. Texas Fever

4. Which New Deal program created a program to provide payments to retired citizens and benefits for unemployed workers?
a. Social Security
b. Works Progress Administration
c. Public Works Administration
d. Civilian Conservation Corps

5. Where did the Japanese attack on December 7, 1941?
"Yesterday, December 7, 1941- a date which will live in infamy- the United States of America was suddenly and deliberately attacked by naval and air forces of the Empire of Japan."
-Franklin D. Roosevelt

a. Lackland Air Force Base, San Antonio
b. Pearl Harbor, Hawaii
c. Ft. Benning, Georgia
d. Sheppard Field, Wichita Falls

6. How did World War II affect Texas society?
   a. Lowered the cost of oil
   b. Decreased the number of jobs in factories and service jobs
   c. Strengthened the economy
   d. Lowered the wages of workers

7. Which environmental disaster made matters worse for farmers in the 1930s?
   a. Drought
   b. Hurricane
   c. Tornedoes
   d. Blizzard

8. In Texas and other states during the 1930s, farmers plowed up the native grasses to plant what crop?
   a. Corn
   b. Rye
   c. Barley
   d. Wheat

9. To understand why the Texas population continues to grow, you must learn about demography. What is demography?
   a. System of government in which voters decide issues directly
   b. Public works such as roads and water systems
   c. Branch of geography that studies human populations
   d. Supremacy in power

10. Which factor finishes the chart?

		Growth Rate	
Birthrate	**?**	**Immigration**	**Gender distribution**

   a. Occupation
   b. Language
   c. Religion
   d. Death rate

11. What major industry did NOT contribute to the urbanization of Texas?
   a. Electronics firms
   b. Dairies
   c. Aircraft manufacturers
   d. Oil refineries

12. Texas has earned a reputation as a leader in medicine. Who performed the first medical technique- a heart transplant- in 1968?
   a. Dr. Denton Cooley
   b. Dr. Joseph Lister
   c. Dr. Phil
   d. Dr. Anson Jones

13. What did Joseph Glidden invent, to keep dogs out of his wife's garden, ending the open range in Texas?
   a. Barbed wire
   b. Squeeze chute
   c. Chain link fence
   d. Stockyards

14. _____ is a computer system that gathers, stores and organizes geographic information that can be used to create maps, provide information and perform complex models for analyzing information about a place or region.
    a. Microsoft Word
    b. Geographic Information Systems
    c. Firefox
    d. iTunes

15. How have Texans tried to manage water resources stored in aquifers?
    a. Build canals to nearby rivers
    b. Placed a dam on a lake
    c. Trucked water from the Gulf of Mexico
    d. Organize water conservation districts

16. What helped Houston to develop into one of the nation's largest ports that contributes some $13 billion a year to the Texas economy?
    a. Dallas-Fort Worth International Airport
    b. Inter-coastal waterway
    c. Houston Ship Channel
    d. Love Field

17. Where was Chester Nimitz born?
    a. Galveston, Texas
    b. Nacogdoches, Texas
    c. El Paso, Texas
    d. Fredericksburg, Texas

18. Who did Nimitz replace as commander in chief of the Pacific Fleet at Pearl Harbor on Christmas Day, 1941?
    a. Admiral Husband Kimmel
    b. Admiral George Dewey
    c. Admiral David Farragut
    d. Henry Mayo

19. What gift was included in the National Museum of the Pacific War?
    a. Cyclorama of Battle of Atlanta
    b. Japanese Peace Garden
    c. Oval Office replica
    d. Gutenberg Bible

20. In which political office did John Nance Garner serve fifteen terms?
    a. Texas House of Representatives
    b. United States Senator
    c. United States House of Representatives
    d. Texas Senate

21. What was John Nance Garner's nickname?
    a. Slick John
    b. Cactus Jack
    c. Texas Eloquence
    d. Texas Jack

22. Who became the United States House of Representatives majority leader in 1937?
    a. Ben Barnes
    b. Mark White
    c. Lyndon B. Johnson
    d. Sam Rayburn

23. Which book, written by Oveta Culp Hobby, won quick acceptance as a handbook on parliamentary law?
    a. Mr. Chairman
    b. Lone Star Nation
    c. Texas
    d. Hidden Figures

24. What was a major event announced during Hobby's term as Secretary of the Department of Health, Education and Welfare?

    a. Discovery of penicillin
    b. Pasteurization of milk
    c. Salk vaccine to prevent polio
    d. First successful angioplasty was performed

25. Which type of economic development finishes the chart?

New England Colonies	
Climate	**Long, cold winters and a short growing season**
Resources	**Rocky soil**
Economic Development	**?**

    a. Self-sufficient gardens
    b. Plantation economy
    c. Small farms, fishing and trade
    d. Manufacturing

26. Why did the Middle Colonies develop an economy based on large farms and cash crops of grain?
    a. Nearly year-round growing season, fertile soil
    b. Shorter winters, a longer growing season, fertile soil
    c. Varied with latitude, woods and streams
    d. Extremely dry

27. What colonial region was distant from the denser coastal populations so settlers there developed an independent and rugged way of life?
    a. Gadsden Purchase
    b. Santa Fe Trail
    c. Republic of Texas
    d. Backcountry

28. Because of these reasons, which crop caused life in the South to change?
    *** Triggered a vast move westward**
    *** Its export increased**
    *** More Native American groups were driven off the land**
    *** Required a larger work force**

    a. Cotton
    b. Sugar cane
    c. Quinoa
    d. Oats

29. What is urbanization?
    a. Lives mainly on farms
    b. Growth of cities resulting from industrialization
    c. To give a place to stay
    d. Unsettled or sparsely settled area occupied largely by Native Americans

30. Who sought the new factory jobs in the cities in the 1800s?
    a. Women
    b. Young, unskilled workers
    c. Immigrants and migrants from America's farms
    d. College graduates

31. How did streetcars change city life?
    a. Allowed people to live farther away from work and helped new suburbs to develop around cities
    b. Increased demand for housing in areas around factories
    c. Reduced need for paved streets
    d. Led to traffic congestion

32. Which colonies became more diverse as these groups of people tended to settle here?
    *** Swedes**
    *** Dutch**
    *** English**
    *** Germans**
    *** Africans**

    a. Southern Colonies
    b. New England Colonies
    c. Backcountry
    d. Middle Colonies

33. What colonies developed a unique pattern of settlement, a cluster of farmhouses surrounded a green?
    a. Middle Colonies
    b. New England Colonies
    c. Southern Colonies
    d. Backcountry

34. In the 1800s, which country had settlements dotting the Pacific Coast all the way from north of San Francisco to Alaska?
    a. Russia
    b. Spain
    c. Britain
    d. Sweden

35. What group, who went west for religious reasons, settled Utah?
    a. Baptists
    b. Separatists
    c. Mormons
    d. Quakers

36. What was NOT a problem of the rapid growth of cities and industries in the United States in the early 1900s?
    a. Poverty
    b. Poor conditions in factories
    c. Spread of slums
    d. Increased wages

37. Which factor finishes the chart on France who produces more food than any Western European nation despite the fact that only 5 percent of their workers labor on farms?

*** Fertile soil**
*** ?**
*** Modern farming methods**

    a. Extreme climate
    b. Plentiful supply of oil
    c. Mild climate
    d. Lack of trade routes

38. An entrepreneur is _____.
    a. Young worker who learned a trade or skill from a master teacher
    b. A person who organizes and manages a business undertaking, assuming the risk for the sake of profit
    c. Follower of a specific teacher
    d. Person who flees to another country to avoid persecution or disaster

39. What title finishes the chart?

?

Farmers planted more than one crop per year **Used improved seeds**

    a. Green Revolution
    b. Industrial Revolution
    c. Bengal Famine
    d. Workers Revolution

40. Which government is a form of limited government?
    a. Dictatorship
    b. Feudalism
    c. Absolute monarchy
    d. Democracy

UNIVERSITY INTERSCHOLASTIC LEAGUE
2020-21 A+ SOCIAL STUDIES
INVITATIONAL TEST — GRADES 7 & 8

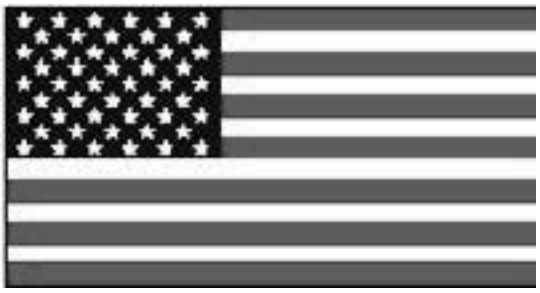
Answer Key

1. D
2. C
3. B
4. A
5. B
6. C
7. A
8. D
9. C
10. D
11. B
12. A
13. A
14. B
15. D
16. C
17. D
18. A
19. B
20. C
21. B
22. D
23. A
24. C
25. C
26. B
27. D
28. A
29. B
30. C
31. A
32. D
33. B
34. A
35. C
36. D
37. C
38. B
39. A
40. D

FALL/WINTER DISTRICT 2020-2021

A+ ACADEMICS

University Interscholastic League



Social Studies

grades 7 & 8

DO NOT OPEN TEST
UNTIL TOLD TO DO SO

UNIVERSITY INTERSCHOLASTIC LEAGUE
2020-21 A+ SOCIAL STUDIES
FALL/WINTER TEST — GRADES 7 & 8

1. What event is the President addressing in this quote?

"This great nation will endure as it has endured, will revive and will prosper. So, first of all, let me assert my firm belief that the only thing we have to fear is fear itself." Franklin D. Roosevelt

a. Era of Good Feelings
b. Great Depression
c. Great Awakening
d. Cold War

2. Where did people rush to sell their stocks in October of 1929?
   a. Chicago Stockyards
   b. Detroit Stock Exchange
   c. New York Stock Exchange
   d. Texas and Southwestern Cattle Raisers Association

3. What factor that helped lead to the Dust Bowl finishes the chart?

The Dust Bowl

Cattle overgrazed land **? Farmers plowed up land to plant wheat**

   a. Drought struck the region
   b. Oil finds increased the economy
   c. Increased population in area
   d. Numerous highways built in area

4. Who was given more authority to regulate the oil industry in Texas as the oil crisis deepened?
   a. Office of Budget and Planning
   b. Texas Board of Education
   c. General Land Office
   d. Railroad Commission

5. Which New Deal program created jobs for Texans by building bridges, dams and roads?
   a. Civilian Conservation Corps
   b. Rural Electrification Administration
   c. National Youth Administration
   d. Soil Conservation Service

6. What event occurred during this time period?

1939 **1945**

a. Stono Rebellion
b. World War II
c. World War I
d. Korea War

7. Who was the sailor from Waco awarded the Navy Cross for his efforts in defending his ship during the Japanese attack at Pearl Harbor?
   a. Huddie Ledbetter
   b. Bose Ikard
   c. John Rayner
   d. Doris Miller

8. How did physical factors combine with human factors- like farming- to cause the Dust Bowl?
   a. Farmers planted trees to anchor the soil
   b. New techniques in farming, like terracing, caused soil erosion
   c. Farmers removed the native grasses that held the soil in place
   d. Underground water resources provided moisture for crops

9. Where were farmers most affected by the Dust Bowl?
   a. Northeastern states
   b. Some of the Pacific states
   c. The Great Plains
   d. Southeastern states

10. How did new technology change farm life in the early 1900s?
   a. Decreased the number of farmers
   b. Allowed farmers to grow more crops
   c. Decreased leisure activities
   d. Fewer varieties of seeds were developed

11. What title finishes the chart?
   a. Industrialization of Texas
   b. Agricultural Texas
   c. Rural Texas
   d. Urbanization of Texas

?

Population	**Industries**	**Transportation**
-Migration to Texas -Population growth -Movement of many rural African Americans to cities	-Aircraft manufacturers -Electronic firms -Oil refineries -Ship manufacturers	-Continued popularity of the automobile -New and improved roads expressways, and interstates

12. The Sunbelt was involved in a new trend of growth that began in the mid-1900s. Where is the Sunbelt?
   a. South and the Southwest
   b. Northern states
   c. Western states
   d. Pacific Northwest

13. Which Eli Whitney invention spurred cotton farming across the southern United States?
   a. Gristmills
   b. Plows
   c. Threshers
   d. Cotton gin

14. Some Texas oil companies began to use a business strategy called vertical integration. What is vertical integration?
    a. Owning many businesses in a particular field
    b. Owning the businesses involved in each step of a manufacturing process
    c. Companies that sell shares of ownership to investors to raise money
    d. Businesses owned and operated for the benefit of the members of an organization

15. How did Spaniards living in the San Antonio area modify their environment?
    a. Built a system to irrigate crops
    b. Drilled for oil
    c. Mined silver in the area
    d. Decreased the use of fire to clear land

16. What scientific innovation occurred in the mid-1800s, and how did that affect Texas?
    a. Automobile invented, decreased demand for oil
    b. Increased use of commercial airways, decreased demand for oil
    c. Scientists discovered kerosene could be made from oil, increased demand for oil
    d. New kitchen appliances, decreased demand for oil

17. Where did Nimitz develop his prototype for the Naval Reserve Officers Training Corps?
    a. University of California at Berkeley
    b. Texas A&M University
    c. United States Military Academy
    d. Massachusetts Institute of Technology

18. During World War II, which event helped to restore United States confidence?
    a. Sinking of the Lusitania
    b. Victories in the Coral Sea and at Midway Island
    c. Evacuation of Dunkirk
    d. Russians solve problem of trench warfare

19. Who did Nimitz succeed as commander-in-chief of the United States Fleet on December 15, 1945?
    a. Admiral George Dewey
    b. Admiral David Farragut
    c. Admiral Ernst King
    d. Henry Mayo

20. Where was John Nance Garner born?
    a. Austin, Texas
    b. Nashville, Tennessee
    c. Detroit, Michigan
    d. Detroit, Texas

21. What appeared to be Garner's main effort during his years in the Texas legislature?
    a. A bridge over the Red River
    b. A highway between Fort Worth and Dallas
    c. The seawall in Galveston
    d. A federal building for Eagle Pass

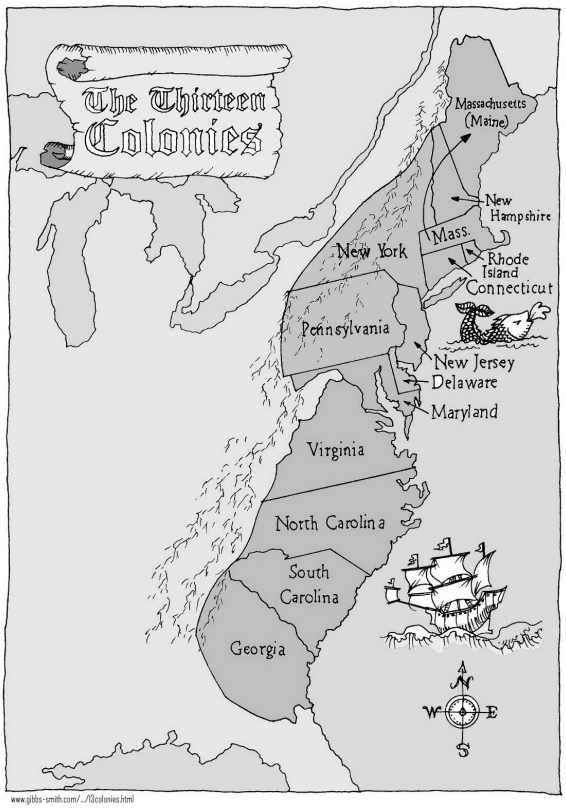
22. How did Franklin D. Roosevelt become indebted to Garner and the State of Texas?
    a. Texas had the most financial contributors to his campaign
    b. Garner gave his votes to him on the fourth ballot at the Presidential convention
    c. Most of his cabinet came from Texas
    d. Large numbers of soldiers volunteered from Texas

23. Which title finishes the chart?
    a. Bessie Coleman
    b. Kay Bailey Hutchison
    c. Oveta Culp Hobby
    d. Margaret Taylor

?

Secretary of Health, Education and Welfare
First Commander of Women's Army Corps
Chairman of the Board of the *Houston Post*

24. What were the “Jolly Entertainers”?
    a. Group of teenage musicians that toured neighboring towns giving benefits to raise money to buy church organs
    b. Elocution club
    c. Journalism group
    d. A group of young authors that became the first Houston Book Club



25. Why were the Southern Colonies able to develop a plantation economy?
    a. Growing season varied with latitude, woods and streams
    b. Nearly year-round growing season, fertile soil
    c. Long, cold winters; short growing season; rocky soil
    d. Shorter winters, shorter growing season, fertile soil

26. What type of economic development finishes the chart?
    a. Small farms
    b. Small farms, fishing and trade
    c. Timber, whaling and trade
    d. Larger farms and cash crops of grain

Middle Colonies

Climate	Shorter winters and a longer growing season
Resources	Fertile soil
Economic development	?

27. Because of these reasons, which colonial region was a good place to set up factories?

- Many fast-moving rivers
- Had ships and access to the ocean
- Willing labor force

a. Middle Colonies
b. Southern Colonies
c. New England Colonies
d. Backcountry

28. Why did the urban population increase in the late 1800s?
    a. Increased number of factory jobs brought increased numbers of workers to fill these jobs
    b. Increased cotton exports improved the price
    c. Offer of free land in the Great Plains
    d. Lack of housing

29. What new innovation helped cities grow and made modern city life possible?
    a. Sod houses
    b. Escalators
    c. Electric light
    d. Skyscrapers

30. Which area ran along the Appalachian Mountains through the far western part of the colonial regions?
    a. Louisiana Purchase
    b. Mexican Cessation
    c. Backcountry
    d. Oregon Trail

31. _____ influenced the settlement and government of the New England Colonies.
    a. Religion
    b. Occupations
    c. Education
    d. Gender

32. What area's excellent harbors along its coasts were ideal sites for cities such as New York and Philadelphia?
    a. Southern Colonies
    b. Middle Colonies
    c. Backcountry
    d. New England Colonies

33. In the 1800s, which nation had a chain of 21 missions in California stretching from San Diego to San Francisco?
    a. Spain
    b. Sweden
    c. Russia
    d. Britain

34. What opened the upper Ohio Valley and the Great Lakes region to settlement and trade and fueled nationalism by unifying these two sections of the country?
    a. Augusta Canal
    b. Cape Cod Canal
    c. Erie Canal
    d. Wheeling Canal

35. Who brought much of the population growth to the industries of the North?
    a. Educated, skilled workers
    b. Immigrants
    c. Native Americans
    d. Elderly workers

36. After the Civil War, what began to replace farming as the basis of the national economy?
    a. Banking
    b. Education
    c. Tourism
    d. New industries such as steel, petroleum, food processing and manufacturing

37. Why might goods sold in the United States be manufactured in China?
    a. More natural resources in China
    b. More skilled workers
    c. Manufacture cost is lower because wages paid to workers is lower
    d. More benefits to workers

38. The _____ in Germany is famous for its beautiful scenery and for its wood products.
    a. Black Forest
    b. Taiga
    c. Redwood Forest
    d. Amazon Forest

39. Why is it important to maintain peace in the area of North Africa and Southwest Asia?
    a. Forests provide timber for the world
    b. Many multinational headquarters are located here
    c. Home to more shipping fleets than any other country
    d. World depends upon the oil and gas resources found here

40. What is a form of unlimited government?
    a. Direct democracy
    b. Dictatorship
    c. Democracy
    d. Feudalism

UIL SOCIAL STUDIES CONTEST - GRADES 7-8
FALL/WINTER DISTRICT
2020-2021

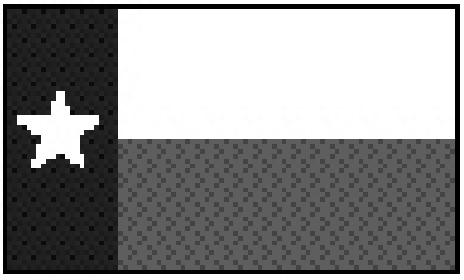
ANSWER KEY

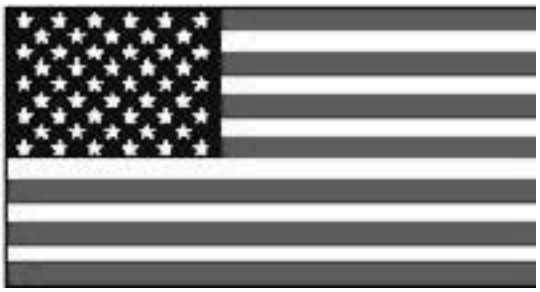
1. B
2. C
3. A
4. D
5. A
6. B
7. D
8. C
9. C
10. B
11. D
12. A
13. D
14. B
15. A
16. C
17. A
18. B
19. C
20. D
21. D
22. B
23. C
24. A
25. B
26. D
27. C
28. A
29. D
30. C
31. A
32. B
33. A
34. C
35. B
36. D
37. C
38. A
39. D
40. B

SPRING DISTRICT 2020-2021

A+ ACADEMICS

University Interscholastic League





Social Studies

grades 7 & 8

DO NOT OPEN TEST
UNTIL TOLD TO DO SO

UNIVERSITY INTERSCHOLASTIC LEAGUE
2020-21 A+ SOCIAL STUDIES
SPRING TEST — GRADES 7 & 8

1931----------1933

1. Who served as the Governor of Texas during this time period?
   a. Coke Stevenson
   b. Ross Sterling
   c. Price Daniel
   d. Beauford Jester

"I see one-third of a nation ill-housed, ill-clad, ill-nourished." Franklin D. Roosevelt

2. How was the Depression somewhat less severe in Texas than it was in many other states?
   a. Charities did not help the citizens
   b. Cities added jobs that increased spending
   c. Most Texas farmers could at least feed their own families
   d. President Eisenhower and the Texas Governor supported government programs to help citizens economically

3. Which industry in Texas faced a severe crisis as the Depression deepened?
   a. Computer
   b. Automobile
   c. Aero-space
   d. Oil

4. What measures did Roosevelt and his advisors ask Congress to pass in order to fight the Depression?
   a. New Deal
   b. Dollar Diplomacy
   c. Square Deal
   d. Big Stick

5. Which Depression era author wrote stories and collections of folktales that captured many aspects of life in Texas?
   a. Huddie Ledbetter
   b. Miriam Ferguson
   c. Woody Guthrie
   d. J. Frank Dobie

6. Who was this nation's most decorated soldier of World War II, with 33 awards and medals?
   a. Benito Rodriguez
   b. Audie Murphy
   c. Allan Shivers
   d. Zachary Taylor

7. What environmental factors caused storms sometimes called black blizzards?
   a. Drought and spring winds
   b. Hurricanes and tornadoes
   c. Spring rain and winds
   d. Heavy snow and driving winds

8. What is NOT a factor used when studying population growth rate?
   a. Birthrate
   b. Gender distribution
   c. Ecosystems
   d. Death rate

9. Why was dense settlement in West Texas and the Panhandle more difficult in the early 1900s?
   a. Lack of water and timber
   b. Numerous ports and markets for goods
   c. Warm, damp climate
   d. Large numbers of educational facilities

10. What was the main port of entry in Texas for immigrants from Europe in the early 1900s?
   a. Dallas
   b. Ft. Worth
   c. Galveston
   d. San Antonio

11. James Oliver invented the _____ to help cut through the tough prairie sod.
   a. Reaper
   b. Tractor
   c. Rake
   d. Steel plow

12. What device enabled farmers to adapt to their environment by reaching huge supplies of underground water?
   a. Thresher
   b. Windmill
   c. Bayous
   d. Corrals

13. How did railroads NOT affect Texas cities?
   a. Expansion of commercial agriculture
   b. Growth of new jobs
   c. Decreased trade
   d. Continued settlement of the West Texas frontier

- **Texas Instruments**
  - **?**
- **Collins Radio**

14. The growth of technology has spurred the Texas economy. What company, that led the world in computer production in the late 1990s, finishes the chart?
   a. Silver Computers
   b. Ford Computers
   c. Motorola Computers
   d. Dell Computers

15. Where was most of the cotton grown in Texas during the1850s?
   a. Along the Gulf Coast
   b. Panhandle
   c. West Texas
   d. In Guadalupe Mountains

16. What was a major concern of many urban Texans in the early 1900s?
    a. Air-conditioning in homes
    b. Sewage in drinking water
    c. Fluoride in drinking water
    d. Soil conservation practices

17. Who served as Chester Nimitz's father figure, following his father's death, and was credited with shaping his character and values?
    a. Grandfather, Charles Nimitz
    b. Friend, Sam Rayburn
    c. Uncle, William Nimitz
    d. Brother, Otto Nimitz

18. Which position did Nimitz NEVER hold?
    a. Roving ambassador for the United Nations
    b. Regent of the University of California
    c. Chairman of the Presidential Commission of Internal Security and Individual Rights
    d. Secretary of Navy

19. Where is the National Museum of the Pacific War located?
    a. Berkeley, California
    b. Annapolis, Maryland
    c. Fredericksburg, Texas
    d. Wollaston, Massachusetts

20. Who was John Nance Garner's opponent in his race for County Judge in 1893?
    a. Oveta Culp Hobby
    b. Mariette Rheiner
    c. Ann Richards
    d. Ralph Yarborough

21. What political action sealed the split between Garner and Franklin Roosevelt?
    a. National Labor Relations Act
    b. Social Security Act
    c. Court-Packing Plan of 1937
    d. Public Utilities Act

22. Where was Oveta Culp Hobby born?
    a. Houston, Texas
    b. Killeen, Texas
    c. Belton, Texas
    d. Abilene, Texas

23. Oveta Culp was asked by the Speaker of the Texas House of Representatives to serve in what position?
    a. Legislative Parliamentarian
    b. Sergeant at Arms
    c. Congressional Historian
    d. Postal Clerk

24. Who asked Hobby to draw up an organizational chart with recommendations on ways women could serve in the military?
    a. General George Crittenden
    b. Brig. General Sullivan Ross
    c. General Henry McCulloch
    d. General David Searles

25. Why did the New England Colonies develop an economy based on small farms, fishing and trade?
    a. Long, cold winters; a short growing season; rocky soil
    b. Short winters, long growing season; fertile soil
    c. Virtually no growing season; frozen soil
    d. Growing season varied with latitude; woods and streams

Southern Colonies

Climate	Nearly year-round growing season
Resources	Fertile soil
Economic Development	?

26. What type of economic development finishes the chart?
    a. Small farms
    b. Timber and mining
    c. Plantation economy
    d. Large farms and cash crops of grain

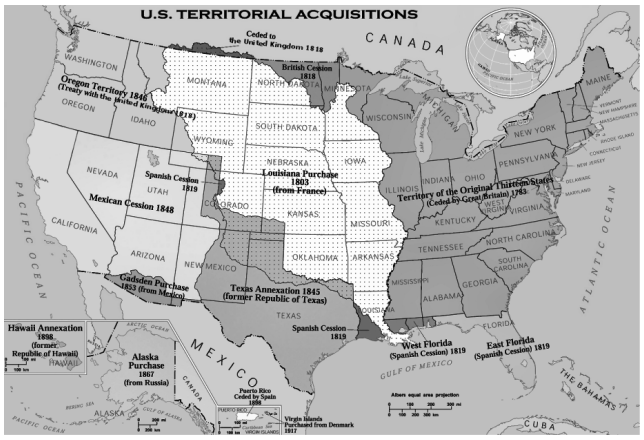
27. Where was the backcountry in Colonial America?
    a. Between New York City and Buffalo, New York
    b. Ran along the Appalachian Mountains through the far western part of the New England, Middle and Southern Colonies
    c. Eastern Great Lakes region
    d. Present-day states of California, Nevada, Utah, most of Arizona, and parts of New Mexico, Colorado and Wyoming

- Skyscrapers
- Elevators
- Use of steel

28. What affect did these new technologies have on cities?
    a. Decreased housing
    b. Increased pollution
    c. Led to traffic congestion
    d. Helped cities to house the millions of people who flocked there

29. Where were the Hudson and Delaware River Valleys with their rich soil and mild winters that were favorable for farming and raising livestock?
    a. Southern Colonies
    b. Backcountry
    c. Middle Colonies
    d. New England Colonies

30. Which colonial area attracted many Scots-Irish immigrants?
    a. Southern Colonies
    b. Backcountry
    c. Middle Colonies
    d. New England Colonies



31. What area, between the Mississippi River and the Rocky Mountains, did the United States purchase for $15 million?
    a. Louisiana Purchase
    b. Mexican Cession
    c. Northwest Territory
    d. California

32. Which Trail was opened by traders traveling west in search of markets?
    a. Chisholm Trail
    b. Preston Ridge Trail
    c. El Camino Real
    d. Santa Fe Trail

33. Who founded Chicago's Hull House, a model for other settlement houses?
    a. Lillian Wald
    b. Jane Addams
    c. Emily Dickinson
    d. Margaret Smith

34. What is defined as the growth of cities resulting from industrialization?
    a. Urbanization
    b. Equity
    c. Reformation
    d. Initiative

35. Which European country is wealthy partly because of oil and natural gas pumped from beneath the North Sea?
    a. Chile
    b. Mexico
    c. Sudan
    d. Norway

?

Ready supply of natural resources Plentiful supply of raw materials
Supply of people as labor

36. What title finishes the chart?
    a. Progressive Era c. Industrial Revolution
    b. Enlightenment d. Gilded Age

37. Kenya's capital has become a center of business and commerce for all of East Africa yet many Kenyans remain poor. How has the economy of Kenya been hurt?
    a. Increased demand for gems
    b. Corrupt practices of government officials
    c. Large supplies of natural resources
    d. Increased farm products

38. Why is it hard for the young people of Nunavut to find jobs?
    a. Large amounts of oil and natural gas
    b. Fertile soil makes large crops of grain
    c. Not much industry in the region
    d. Mild climate

39. What is a limited government?
    a. Government in which leaders rule without any restrictions
    b. Government under the control of one all-powerful leader
    c. Form of government in which the king or queen governs with complete power
    d. Type of government where, through law, some control is placed on leadership's powers

40. Great Britain has a _____ type of government.
    a. Constitutional monarchy c. Dictatorship
    b. Absolute monarchy d. Democracy

UNIVERSITY INTERSCHOLASTIC LEAGUE
2020-21 A+ SOCIAL STUDIES
SPRING DISTRICT — GRADES 7 & 8

Answer Key

1. B
2. C
3. D
4. A
5. D
6. B
7. A
8. C
9. A
10. C
11. D
12. B
13. C
14. D
15. A
16. B
17. A
18. D
19. C
20. B
21. C
22. B
23. A
24. D
25. A
26. C
27. B
28. D
29. C
30. B
31. A
32. D
33. B
34. A
35. D
36. C
37. B
38. C
39. D
40. A