University Interscholastic League
2024 – 2025 Elementary 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.

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Stop – Wait for Signal!

(1) $22 + 41 =$ _____

(2) $37 + 48 =$ _____

(3) $108 - 42 =$ _____

(4) $312 \div 3 =$ _____

(5) $26 \times 5 =$ _____

(6) $425 - 332 =$ _____

(7) $19 + 7 + 13 =$ _____

(8) $52 \times 11 =$ _____

(9) $16 \times 50 =$ _____

*(10) $2025 + 224 =$ _____

(11) $16 \times 25 =$ _____

(12) Which digit is in the hundredths place in 34917.20568? _____

(13) $22 \times 18 =$ _____

(14) 83670.2874 rounded to the tenths place is _____

(15) What is the remainder for $60318 \div 9$? _____

(16) The number of even whole numbers between 13 and 25 is _____

(17) $3\times10^{-2} + 2\times10^{0} + 4\times10^{-1} =$ _____(decimal)

(18) $17 \times 3 + 17 \times 7 =$ _____

(19) DLX = _____ (Arabic Numeral)

*(20) $225 \times 399 =$ _____

(21) $16 - 8 \div 2 =$ _____

(22) $9 + 12 + 15 + 18 =$ _____

(23) $\frac{1}{12}$ hour = _____minutes

(24) $123 \times 20 =$ _____

(25) $\frac{5}{14} - \frac{3}{14} =$ _____

(26) $99 \times 98 =$ _____

(27) 38% = _____ common fraction

(28) If 15 ♥ costs 25¢, then 45 ♥ cost _____¢

(29) $21 \div \frac{3}{10} =$ _____

*(30) $499 \times 719 + 59 =$ _____

(31) \$28 = _____quarters

(32) The largest prime number between 40 and 60 is _____

(33) 64 ounces = _____quarts

(34) $3434 \div 34 =$ _____

(35) $83\frac{1}{3}\% =$ _____common fraction

(36) The LCM of 24 and 16 is _____

(37) $33 \times 12 =$ _____

(38) If 12 apples cost \$2.40, then 8 apples cost \$_____

(39) 6 is to 20 as 3 is to _____

*(40) $213 \times 667 =$_____

(41) $\frac{1}{8} + \frac{3}{8} =$_____(common fraction)

(42) $16^2 - 6 =$ _____

(43) If $f(x) = 3x - 5$, then $f(4) =$ _____

(44) The radius of a circle with a circumference of 100π is _____

(45) $2^4 \times 3^0 =$ _____

(46) $2\frac{1}{4} \times 6\frac{1}{4} =$_____(mixed number)

(47) What is the area of a square with perimeter 36?_____

(48) $44\frac{4}{9}\% \times 18 =$_____

(49) If there are 12 grapes to an ounce, then 1 pound equals how many grapes?_____

*(50) $249\frac{1}{90} \times 164 =$_____

(51) What is the number, ***k***, in the sequence: 1, 3, 5, ***k***, , 9, 11, . . .? _____

(52) $9\frac{4}{5} - 6\frac{9}{10} =$_____(mixed number)

(53) $\sqrt{576} =$ _____

(54) A square with area 9 is located inside a square with perimeter 36. What is the area between the squares? _____

(55) 32 (base 3) =_____(base 10)

(56) The number of elements in $\{2, 4, 6\} \cup \{1, 2, 3, 4\}$ is _____

(57) What is the perimeter of a regular hexagon with side $4\frac{1}{2}$?_____

(58) $75 \times 32 =$_____

(59) $2\frac{1}{2} + 2\frac{1}{2} \times 4\frac{1}{2} =$_____

*(60) 160 inches =_____centimeters

(61) 1001 (base 2) = _____ (base 4)

(62) $125 \times (-4) =$ _____

(63) What is the probability a getting a sum of 9 when rolling a pair of dice? _____

(64) 3 pints = _____ounces

(65) $57^2 =$_____

(66) $10^5 \div 6$ has remainder of_____

(67) The area of a rhombus with diagonals $2\frac{1}{2}$ and 20 is _____

(68) If $-3x + 15 < 54$, then $x >$ _____

(69) $(-2.25) \times (-40) =$ _____

*(70) $25^3 =$_____

(71) The multiplicative inverse of $6\frac{3}{7}$ is_____

(72) $6^2 - 26^2 =$ _____

(73) 125% of 440 = _____

(74) What is the area of a trapezoid with bases $4\frac{1}{4}$, $6\frac{1}{4}$ and altitude to the bases of 20?_____

(75) $24^2 + 6^2 =$ _____

(76) $(1 + 3 + 5 + \ldots + 11)^2 =$_____

(77) What is the total surface area of a rectangular box with edges 8, 6 and 5? _____

(78) The area of a right triangle with legs $4\frac{1}{4}$ and 16 is _____

(79) $375 \times 80 =$ _____

*(80) 15 square miles = _____acres

2024 – 2025 University Interscholastic League Elementary Number Sense Test A – Key

(1) 63

(2) 85

(3) 66

(4) 104

(5) 130

(6) 93

(7) 39

(8) 572

(9) 800

*(10) 2137 – 2361

(11) 400

(12) 0

(13) 396

(14) 83670.3; $83670\frac{3}{10}$; $\frac{836703}{10}$

(15) 0

(16) 6

(17) 2.43

(18) 170

(19) 560

*(20) 85287 – 94263

(21) 12

(22) 54

(23) 5

(24) 2460

(25) $\frac{1}{7}$

(26) 9702

(27) $\frac{19}{50}$

(28) 75

(29) 70

*(30) 340898 – 376782

(31) 112

(32) 59

(33) 2

(34) 101

(35) $\frac{5}{6}$

(36) 48

(37) 396

(38) 1.60

(39) 10

*(40) 134968 – 149174

(41) $\frac{1}{2}$

(42) 250

(43) 7

(44) 50

(45) 16

(46) $14\frac{1}{16}$

(47) 81

(48) 8

(49) 192

*(50) 38796 – 42879

(51) 7

(52) $2\frac{9}{10}$

(53) 24

(54) 72

(55) 5

(56) 5

(57) 27

(58) 2400

(59) $13\frac{3}{4}$; 13.75; $\frac{55}{4}$

*(60) 387 – 426

(61) 21

(62) -500

(63) $\frac{1}{9}$

(64) 48

(65) 3249

(66) 4

(67) 25

(68) -13

(69) 90

*(70) 14844 – 16406

(71) $\frac{7}{45}$

(72) -640

(73) 550

(74) 105

(75) 612

(76) 1296

(77) 236

(78) 34

(79) 30000

*(80) 9120 – 10080

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
2024 – 2025 Junior High Number Sense Test A

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(1) $2025 \div 25 =$ _____

(2) $25 \times 16 =$ _____

(3) $103 - 59 =$ _____

(4) $1101 \div 3 =$ _____

(5) $\frac{7}{12} - \frac{1}{4} =$ _____

(6) $24 \div 0.25 =$ _____

(7) $38 \times 11 =$ _____

(8) $17^2 =$ _____

(9) $24 - 16 \div 4 + 2 =$ _____

*(10) $2024 \times 99 + 2025 =$ _____

(11) $19 \times 21 =$ _____

(12) The median of 18, 20, 15, 12 is _____

(13) Which is smaller: $\frac{9}{11}$ or $\frac{11}{13}$? _____

(14) $21 \times 18 + 9 \times 18 =$ _____

(15) $38 \times 78 =$ _____

(16) $220 - 31 - 29 =$ _____

(17) $27^2 =$ _____

(18) $17 + 20 + 23 + 26 + 29 =$ _____

(19) MDXL = _____ (Arabic Numeral)

*(20) $361 \times 330 =$ _____

(21) If $2x + 13 = 21$, then $x^2 =$ _____

(22) $102 \times 104 =$ _____

(23) $9\frac{5}{12} - 6\frac{2}{3} =$ _____

(24) A $12\frac{1}{2}$% sales tax on \$16 is \$ _____

(25) $3\frac{2}{3} \times 3\frac{1}{3} =$ _____ (mixed number)

(26) $2.5 \times 4.4 \times 10 =$ _____

(27) 1 gallon = _____ cubic inches

(28) The GCD of 18, 12 and 20 is _____

(29) How many whole numbers evenly divide 24? _____

*(30) $545 \times 121 - 45 =$ _____

(31) $37 \times 73 =$ _____

(32) If a square, with area 36, and equilateral triangle have the same perimeter, the triangle side = _____

(33) If $1.75 - 0.5 = \boldsymbol{n}$, the $\boldsymbol{n}^{-1} =$ _____

(34) $-5^2 =$ _____

(35) 3 cups = _____ ounces

(36) 1 inch = _____ centimeters

(37) $41\frac{2}{3}$% of 36 is _____

(38) $111 \times 678 =$ _____

(39) The area of a square with a diagonal of 8 is _____

*(40) 410 yards = _____ inches

(41) For the sequence: 3, **n**, 11, **q**, 19, 23, . . . **n** + **q** equals _____

(42) $5^4 + 5^3 =$ _____

(43) $75 \times 23 =$ _____

(44) The number of elements in $\{1, 2, 3, 5\} \cup \{2, 4, 6, 8\}$ is _____

(45) 4 (base 5) × 41 (base 5) = _____ (base 5)

(46) The length of the edge of a cube with surface area 150 is _____

(47) The perimeter of a right triangle with leg 5 and hypotenuse 13 is _____

(48) The largest prime number less than 100 is _____

(49) The volume of a rectangular solid that measures 8 by 5 by x is 120. What is x? _____

*(50) $39782 \div 25 =$ _____

(51) What is the area of the trapezoid with bases $7\frac{1}{2}$, $9\frac{1}{2}$ and height 8? _____

(52) What is the 10^{th} term in the sequence: 1, 3, 5,…? ___

(53) $101 \times 468 =$ _____

(54) Twice a number added to 12 is 14. The number is ___

(55) What is the perimeter of a rectangle with diagonal 13 and length 12? _____

(56) The area of a rhombus with diagonals 12 and x is 60. What is x? _____

(57) $48 \times 24 =$ _____

(58) $(12^2 + 8 \times 6) \div 5$ has a remainder of _____

(59) If $13 - 2x < 27$, then $x >$ _____

*(60) $35^3 =$ _____

(61) $(-12) - (-24) \div (-3) =$ _____

(62) $25\frac{1}{3}$ days = _____ hours

(63) 20 meters/sec = _____ km/hr

(64) 0.4666…= _____ (common fraction)

(65) $\frac{3}{4} + \frac{4}{3} =$ _____

(66) The volume of a circular cylinder with radius 10 and length 25 is $\mathbf{k}\pi$. What is **k**? = _____

(67) The sum of the whole number divisors of 12 is _____

(68) $3! \times 4! =$ _____

(69) 225% of 444 = _____

*(70) 15 square miles = _____ acres

(71) $286 \times 49 =$ _____

(72) $43\frac{3}{4}\% =$ _____ (common fraction)

(73) $22 \times 0.8181 \ldots =$ _____

(74) The surface area of a sphere with a diameter of 8 is $\boldsymbol{k}\pi$ and $\boldsymbol{k}$ = _____

(75) What is the probability of drawing a red queen from a standard deck of 52 cards? _____

(76) If the shortest distance between the points (6, 5) and (0, **x**) is 10, what is **x**? _____

(77) $5^3 \div 25 =$ _____

(78) 18% of **n** equals 9% of 20. **n** = _____

(79) $20 + 19 + 18 + \ldots + 0 =$ _____

*(80) $749 \times 359 =$ _____

2024 – 2025 University Interscholastic League Junior High Number Sense Test A – Key

(1) 81

(2) 400

(3) 44

(4) 367

(5) $\frac{1}{3}$

(6) 96

(7) 418

(8) 289

(9) 22

*(10) 192281 – 212521

(11) 399

(12) 16.5; $16\frac{1}{2}$; $\frac{33}{2}$

(13) $\frac{9}{11}$

(14) 540

(15) 2964

(16) 160

(17) 729

(18) 115

(19) 1540

*(20) 113174 – 125086

(21) 16

(22) 10608

(23) $2\frac{3}{4}$; 2.75; $\frac{11}{4}$

(24) 2.00

(25) $12\frac{2}{9}$

(26) 110

(27) 231

(28) 2

(29) 8

*(30) 62605 – 69195

(31) 2701

(32) 8

(33) $\frac{4}{5}$; .8

(34) -25

(35) 24

(36) 2.54; $2\frac{27}{50}$; $\frac{127}{50}$

(37) 15

(38) 75258

(39) 32

*(40) 14022 – 15498

(41) 22

(42) 750

(43) 1725

(44) 7

(45) 314

(46) 5

(47) 30

(48) 97

(49) 3

*(50) 1512 – 1670

(51) 68

(52) 19

(53) 47268

(54) 1

(55) 34

(56) 10

(57) 1152

(58) 2

(59) -7

*(60) 40732 – 45018

(61) -20

(62) 608

(63) 72

(64) $\frac{7}{15}$

(65) $2\frac{1}{12}$; $\frac{25}{12}$

(66) 2500

(67) 28

(68) 144

(69) 999

*(70) 9120 – 10080

(71) 14014

(72) $\frac{7}{16}$

(73) 18

(74) 64

(75) $\frac{1}{26}$

(76) -3

(77) 5

(78) 10

(79) 210

*(80) 255447 – 282335

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
2024 – 2025 Elementary Number Sense Test B

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Final	_____	_____
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(1) $24 + 45 =$ _____

(2) $78 + 23 =$ _____

(3) $224 - 56 =$ _____

(4) $918 \div 3 =$ _____

(5) $5 \times 48 =$ _____

(6) $402 - 127 =$ _____

(7) $36 + 16 + 14 =$ _____

(8) $64 \times 11 =$ _____

(9) $50 \times 23 =$ _____

*(10) $1 + 897 + 1203 =$ _____

(11) $16 \times 25 =$ _____

(12) 38670.4782 rounded to the hundreds place is _____

(13) Which digit is in the thousands place in 34917.20568? _____

(14) $31 \times 29 =$ _____

(15) What is the remainder for $46188 \div 9$? _____

(16) The number of odd whole numbers between 7 and 19 is _____

(17) $5\times10^{-1} + 6\times10^{1} + 2\times10^{-3} =$ _____(decimal)

(18) $57 \times 15 - 57 \times 5 =$ _____

(19) XCIV = _____ (Arabic Numeral)

*(20) $667 \times 39 =$ _____

(21) $18 + 24 \div 2 \times 3 =$ _____

(22) $34 + 30 + 26 + 22 =$ _____

(23) $\frac{5}{12}$ hour = _____minutes

(24) $143 \times 7 =$ _____

(25) $\frac{19}{24} - \frac{3}{24} =$ _____

(26) $102 \times 101 =$ _____

(27) 76% = _____ common fraction

(28) If 15 ♥ costs 27¢, then 10 ♥ cost _____¢

(29) $28 \div \frac{7}{10} =$ _____

*(30) $126 \times 721 + 54 =$ _____

(31) \$39.75 =_____quarters

(32) The smallest prime number between 60 and 50 is _____

(33) 64 ounces =_____pints

(34) $44 \times 18 =$ _____

(35) $87\frac{1}{2}\% =$ _____common fraction

(36) The LCM of 24 and 15 is _____

(37) $36 \times 12 =$ _____

(38) If 12 apples cost \$3.60, then 8 apples cost \$_____

(39) 12 is to 20 as 4 is to _____

*(40) $161 \times 625 =$_____

(41) $\frac{5}{16} + \frac{7}{16} =$_____(common fraction)

(42) $14^2 - 4 =$ _____

(43) If $f(x) = 2x + 7$, then $f(12) =$ _____

(44) The diameter of a circle with an area of 144π is

_____

(45) $3^3 \times 3^0 =$ _____

(46) $2\frac{1}{8} \times 2\frac{7}{8} =$_____(mixed number)

(47) What is the perimeter of a square with area 64?_____

(48) $77\frac{7}{9}\% \times 36 =$_____

(49) If there are 128 grapes to a pound, then 1 ounce equals how many grapes?_____

*(50) $334\frac{1}{70} \times 359 =$ _____

(51) What is the number, ***k***, in the sequence:
0, 3, 8, ***k***, 24, 35, . . .? _____

(52) $4\frac{3}{4} + 5\frac{7}{10} =$_____(mixed number)

(53) $\sqrt[3]{64} =$ _____

(54) A square with area 16 is located inside a square with perimeter 24. What is the area between the squares?

_____

(55) 24 (base 6) =_____(base 10)

(56) The number of elements in $\{1, 2, 4, 6\} \cap \{1, 2, 3, 4\}$ is _____

(57) What is the perimeter of a regular octagon with side $4\frac{1}{2}$?_____

(58) $75 \times 18 =$_____

(59) $12\frac{7}{9} - 3\frac{1}{3} \times 3\frac{1}{3} =$ _____

*(60) 200 inches =_____centimeters

(61) 31 (base 4) = _____ (base 2)

(62) $(-225) \times (-4) =$ _____

(63) What is the probability a getting a sum of 3 when rolling a pair of dice? _____

(64) 4 quarts = _____ pints

(65) $48^2 =$_____

(66) $12^5 \div 8$ has remainder of_____

(67) The area of a rhombus with diagonals 10 and $12\frac{1}{2}$ is

_____

(68) If $-3x - 15 < -12$, then $x >$_____

(69) $(-40) \div (-0.25) =$ _____

*(70) $19^3 =$_____

(71) The multiplicative inverse of $-3\frac{3}{8}$ is _____

(72) $18^2 - 32^2 =$ _____

(73) If 150% of 220 = _____

(74) What is the area of a trapezoid with bases $5\frac{1}{8}$, $9\frac{1}{8}$ and altitude to the bases of 8? _____

(75) $15^2 + 30^2 =$ _____

(76) $(1 + 2 + 3 + \ldots + 10)^2 =$_____

(77) What is the total surface area of a rectangular box with edges 4, 7 and 6? _____

(78) The area of a right triangle with legs $8\frac{2}{3}$ and 12 is

_____

(79) $625 \times 80 =$ _____

*(80) 25 square miles = _____acres

2024 – 2025 University Interscholastic League Elementary Number Sense Test B – Key

(1) 69

(2) 101

(3) 168

(4) 306

(5) 240

(6) 275

(7) 66

(8) 704

(9) 1150

*(10) 1996 – 2206

(11) 400

(12) 38700

(13) 4

(14) 899

(15) 0

(16) 5

(17) 60.502

(18) 570

(19) 94

*(20) 24713 – 27313

(21) 54

(22) 112

(23) 25

(24) 1001

(25) $\frac{2}{3}$

(26) 10302

(27) $\frac{19}{25}$

(28) 18

(29) 40

*(30) 86355 – 95445

(31) 159

(32) 53

(33) 4

(34) 792

(35) $\frac{7}{8}$

(36) 120

(37) 432

(38) 2.40

(39) $6\frac{2}{3}$; $\frac{20}{3}$

*(40) 95594– 105656

(41) $\frac{3}{4}$

(42) 192

(43) 31

(44) 24

(45) 27

(46) $6\frac{7}{64}$

(47) 32

(48) 28

(49) 8

*(50) 113916 – 125906

(51) 15

(52) $10\frac{9}{20}$

(53) 4

(54) 20

(55) 16

(56) 3

(57) 36

(58) 1350

(59) $1\frac{2}{3}$; $\frac{5}{3}$

*(60) 483 – 533

(61) 1101

(62) 900

(63) $\frac{1}{18}$

(64) 8

(65) 2304

(66) 0

(67) $62\frac{1}{2}$; $\frac{125}{2}$; 62.5

(68) -1

(69) 160

*(70) 6517 – 7201

(71) $-\frac{8}{27}$

(72) -700

(73) 330

(74) 57

(75) 1125

(76) 3025

(77) 188

(78) 52

(79) 50000

*(80) 15200 – 16800

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
2024 – 2025 Junior High Number Sense Test B

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(1) $50 \div 0.25 =$ _____

(2) $25 \times 0.12 =$ _____

(3) $411 - 109 =$ _____

(4) $981 \div 9 =$ _____

(5) $\frac{11}{16} - \frac{1}{2} =$ _____

(6) $2.25 - 0.25 =$ _____

(7) $12 \times 14 =$ _____

(8) $23^2 =$ _____

(9) $12 + 8 \div 2 - 4 =$ _____

*(10) $2025 \times 101 - 2024 =$ _____

(11) $73 \times 77 =$ _____

(12) The median of 11, 6, 20, 16 is _____

(13) $132 \times \frac{9}{11} =$ _____

(14) $26 \times 11 - 26 \times 6 =$ _____

(15) $13 \times 10 \times 13 =$ _____

(16) $461 + 28 + 32 =$ _____

(17) $56^2 =$ _____

(18) $31 + 25 + 19 + 13 + 7 =$ _____

(19) MMXXIV = _____(Arabic Numeral)

*(20) $454 \times 219 - 26 =$ _____

(21) $95 \times 98 =$ _____

(22) If $3x - 13 = 26$, then $x^2 =$ _____

(23) $8\frac{3}{4} + 6\frac{11}{12} =$ _____

(24) An $8\frac{1}{3}$% sales tax on \$48 is \$ _____

(25) $4\frac{1}{2} \times 2\frac{1}{2} =$ _____ (mixed number)

(26) $1.25 \times 2.4 \times 10 =$ _____

(27) 4 gallons =_____cubic inches

(28) The GCD of 12, 24 and 16 is _____

(29) How many whole numbers evenly divide 54? _____

*(30) $109 \times 636 - 24 =$ _____

(31) $27 \times 87 =$ _____

(32) If a square, with area 9, and equilateral triangle have the same perimeter, the triangle side = _____

(33) If $2.5 - 0.25 = \boldsymbol{n}$, the $\boldsymbol{n}^{-1} =$ _____

(34) $-9^2 =$ _____

(35) 3 pints = _____ounces

(36) 3 inches =_____centimeters

(37) $58\frac{1}{3}$% of 24 is _____

(38) $494 \times 111 =$ _____

(39) The area of a square with a diagonal of 12 is _____

*(40) 3 miles = _____ feet

(41) For the sequence: 2, **n**, 10, **q**, 26, 37, . . . **q** – **n** equals _____

(42) $4^4 - 4^3 =$ _____

(43) $31 \times 75 =$ _____

(44) The number of elements in $\{2, 3, 5, 6\} \cap \{1, 2, 3, 4\}$ is _____

(45) 3 (base 4) × 32 (base 4) = _____ (base 4)

(46) The length of the edge of a cube with surface area 54 is _____

(47) The perimeter of a right triangle with leg 9 and hypotenuse 15 is _____

(48) The smallest prime number larger than 50 is _____

(49) The volume of a rectangular solid that measures 6 by 8 by x is 96. What is x? _____

*(50) $66275 \div 25 =$ _____

(51) What is the area of the trapezoid with bases $9\frac{2}{3}$, $7\frac{2}{3}$ and height 6? _____

(52) What is the 8^{th} term in the sequence: 1, 2, 3,…? ____

(53) $101 \times 935 =$ _____

(54) Three times a number added to 5 is 38. The number is _____

(55) What is the perimeter of a rectangle with diagonal 15 and length 12? _____

(56) The area of a rhombus with diagonals 14 and x is 105. What is x? _____

(57) $125 \times 24 =$ _____

(58) $(7^3 + 7 \times 6) \div 4$ has a remainder of _____

(59) If $15 - 2x > 43$, then $x <$ _____

*(60) $8311 \div 79 \times 101 =$ _____

(61) $24 + (-24) \div 8 =$ _____

(62) $24\frac{3}{7}$ weeks = _____ days

(63) 15 meters/sec = _____ km/hr

(64) 0.7333…= _____(common fraction)

(65) $\frac{3}{5} + \frac{5}{3} =$ _____

(66) The volume of a circular cylinder with radius 8 and length 20 is $\mathbf{k}\pi$. What is **k**? = _____

(67) The sum of the whole number divisors of 20 is _____

(68) $\frac{5! + 3!}{3!} =$ _____

(69) 275% of 240 = _____

*(70) 2 square yards = _____inches

(71) $286 \times 56 =$ _____

(72) $58\frac{1}{3}\% =$ _____ (common fraction)

(73) $30 \times 0.7333 \ldots =$ _____

(74) The surface area of a sphere with a diameter of 6 is $\boldsymbol{k}\pi$ and $\boldsymbol{k}$ = _____

(75) What is the probability of drawing an ace from a standard deck of 52 cards? _____

(76) If the shortest distance between the points (6, 5) and (12, **x**) is 10, what is **x**? _____

(77) $4^4 \div 16 =$ _____

(78) 14% of **n** equals 9% of 28. **n** = _____

(79) $21 + 19 + 17 + \ldots + 1 =$ _____

*(80) $6875 \times 321 =$ _____

2024 – 2025 University Interscholastic League Junior High Number Sense Test B – Key

(1) 200

(2) 3

(3) 302

(4) 109

(5) $\frac{3}{16}$; .1875

(6) 2

(7) 168

(8) 529

(9) 12

*(10) 192376 – 212626

(11) 5621

(12) 13.5; $13\frac{1}{2}$; $\frac{27}{2}$

(13) 108

(14) 130

(15) 1690

(16) 521

(17) 3136

(18) 95

(19) 2024

*(20) 94430 – 104370

(21) 9310

(22) 169

(23) $15\frac{2}{3}$; $\frac{47}{3}$

(24) 4.00

(25) $11\frac{1}{4}$

(26) 30

(27) 924

(28) 4

(29) 8

*(30) 65835 – 72765

(31) 2349

(32) 4

(33) $\frac{4}{9}$

(34) -81

(35) 48

(36) 7.62; $7\frac{31}{50}$; $\frac{381}{50}$

(37) 14

(38) 54834

(39) 72

*(40) 15048 – 16632

(41) 12

(42) 192

(43) 2325

(44) 2

(45) 222

(46) 3

(47) 36

(48) 53

(49) 2

*(50) 2519 – 2783

(51) 52

(52) 8

(53) 94435

(54) 11

(55) 42

(56) 15

(57) 3000

(58) 1

(59) -14

*(60) 10095 – 11156

(61) 21

(62) 171

(63) 54

(64) $\frac{11}{15}$

(65) $2\frac{4}{15}$; $\frac{34}{15}$

(66) 1280

(67) 42

(68) 21

(69) 660

*(70) 2463 – 2721

(71) 16016

(72) $\frac{7}{12}$

(73) 22

(74) 36

(75) $\frac{1}{13}$

(76) 13

(77) 16

(78) 18

(79) 121

*(80) 2096532 – 2317218

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
2024 – 2025 Elementary Number Sense Test C

Contestant's Number _____

	Score	Initials
Final	_____	_____
2nd	_____	_____
1st	_____	_____

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) $71 + 26 =$ _____

(2) $38 + 83 =$ _____

(3) $701 - 46 =$ _____

(4) $204 \div 4 =$ _____

(5) $6 \times 23 =$ _____

(6) $472 - 363 =$ _____

(7) $32 + 14 + 18 =$ _____

(8) $49 \times 11 =$ _____

(9) $50 \times 76 =$ _____

*(10) $5 + 792 + 1993 =$ _____

(11) $36 \times 25 =$ _____

(12) 38670.4782 rounded to the thousands place is _____

(13) Which digit is in the thousands place in 743914.20685? _____

(14) $51 \times 49 =$ _____

(15) What is the remainder for $64388 \div 9$? _____

(16) The number of odd whole numbers between 17 and 39 is _____

(17) $2\times10^{-3} + 3\times10^{2} + 8\times10^{-2} =$ _____(decimal)

(18) $24 \times 35 - 24 \times 5 =$ _____

(19) XLIV = _____ (Arabic Numeral)

*(20) $42 \times 667 =$ _____

(21) $18 + 12 \div 3 \times 2 =$ _____

(22) $26 + 22 + 18 + 14 =$ _____

(23) $\frac{7}{12}$ hour = _____minutes

(24) $286 \times 7 =$ _____

(25) $\frac{13}{24} - \frac{3}{24} =$ _____

(26) $103 \times 102 =$ _____

(27) 84% = _____ common fraction

(28) If 12 ♥ costs 27¢, then 16 ♥ cost _____¢

(29) $24 \div \frac{3}{10} =$ _____

*(30) $639 \times 126 + 86 =$ _____

(31) \$27.75 =_____ quarters

(32) The smallest prime number between 50 and 20 is _____

(33) 48 ounces =_____pints

(34) $44 \times 21 =$ _____

(35) $62\frac{1}{2}\% =$ _____common fraction

(36) The LCM of 36 and 24 is _____

(37) $45 \times 15 =$ _____

(38) If 12 apples cost \$2.40, then 8 apples cost \$_____

(39) 12 is to 20 as 5 is to _____

*(40) $318 \times 625 =$_____

(41) $\frac{11}{24} + \frac{7}{24} =$_____ (common fraction)

(42) $15^2 - 5 =$ _____

(43) If $f(x) = 2x - 7$, then $f(12) =$ _____

(44) The diameter of a circle with an area of 100π is

_____

(45) $5^3 \div 5^0 =$ _____

(46) $8\frac{1}{8} \times 8\frac{7}{8} =$_____(mixed number)

(47) What is the perimeter of a square with area 49?_____

(48) $55\frac{5}{9}\% \times 36 =$ _____

(49) If there are 112 grapes to a pound, then 1 ounce equals how many grapes?_____

*(50) $299\frac{1}{70} \times 402 =$ _____

(51) What is the number, ***k***, in the sequence: -1, 2, 7, ***k***, 23, 34, . . .? _____

(52) $5\frac{7}{8} + 7\frac{3}{4} =$_____ (mixed number)

(53) $\sqrt[3]{27} =$ _____

(54) A square with area 49 is located inside a square with perimeter 52. What is the area between the squares?

_____

(55) 34 (base 6) =_____(base 10)

(56) The number of elements in $\{1, 2, 3, 6\} \cap \{1, 2, 3, 4\}$ is _____

(57) What is the perimeter of a regular octagon with side $6\frac{1}{4}$?_____

(58) $75 \times 28 =$_____

(59) $22\frac{7}{9} - 4\frac{1}{3} \times 4\frac{2}{3} =$ _____

*(60) 250 inches =_____centimeters

(61) 32 (base 4) = _____ (base 2)

(62) $(-125) \times (-4) =$ _____

(63) What is the probability a getting a sum of 5 when rolling a pair of dice? _____

(64) 6 quarts = _____ pints

(65) $36^2 =$_____

(66) $11^5 \div 9$ has remainder of_____

(67) The area of a rhombus with diagonals 20 and $15\frac{1}{2}$ is

_____

(68) If $-3x + 15 < 12$, then $x >$ _____

(69) $(-24) \div (-0.25) =$ _____

*(70) $21^3 =$_____

(71) The multiplicative inverse of $-3\frac{5}{8}$ is _____

(72) $22^2 - 28^2 =$ _____

(73) If 150% of 210 = _____

(74) What is the area of a trapezoid with bases $4\frac{3}{4}$, $6\frac{3}{4}$ and altitude to the bases of 8? _____

(75) $21^2 + 42^2 =$ _____

(76) $(1 + 2 + 3 + \ldots + 9)^2 =$_____

(77) What is the total surface area of a rectangular box with edges 3, 5 and 4? _____

(78) The area of a right triangle with legs $6\frac{2}{3}$ and 6 is

_____

(79) $625 \times 48 =$ _____

*(80) 32 square miles = _____acres

2024 – 2025 University Interscholastic League Elementary Number Sense Test C – Key

(1) 97

(2) 121

(3) 655

(4) 51

(5) 138

(6) 109

(7) 64

(8) 539

(9) 3800

*(10) 2651 – 2929

(11) 900

(12) 39000

(13) 3

(14) 2499

(15) 2

(16) 10

(17) 300.082

(18) 720

(19) 44

*(20) 26614 – 29414

(21) 26

(22) 80

(23) 35

(24) 2002

(25) $\frac{5}{12}$

(26) 10506

(27) $\frac{21}{25}$

(28) 36

(29) 80

*(30) 76570 – 84630

(31) 111

(32) 23

(33) 3

(34) 924

(35) $\frac{5}{8}$

(36) 72

(37) 675

(38) 1.60

(39) $8\frac{1}{3}$; $\frac{25}{3}$

*(40) 188813 – 208687

(41) $\frac{3}{4}$

(42) 220

(43) 17

(44) 20

(45) 125

(46) $72\frac{7}{64}$

(47) 28

(48) 20

(49) 7

*(50) 114194 – 126213

(51) 14

(52) $13\frac{5}{8}$

(53) 3

(54) 120

(55) 22

(56) 3

(57) 50

(58) 2100

(59) $2\frac{5}{9}$; $\frac{23}{9}$

*(60) 604 – 666

(61) 1110

(62) 500

(63) $\frac{1}{9}$

(64) 12

(65) 1296

(66) 5

(67) 155

(68) 1

(69) 96

*(70) 8798 – 9724

(71) $-\frac{8}{29}$

(72) -300

(73) 315

(74) 46

(75) 2205

(76) 2025

(77) 94

(78) 20

(79) 30000

*(80) 19456 – 21504

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
2024 – 2025 Junior High Number Sense Test C

Contestant's Number _____

	Score	Initials
Final	_____	_____
2nd	_____	_____
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The person conducting this contest should explain these directions to the contestants.
Stop – Wait for Signal!

(1) $40 \div 0.25 =$ _____

(2) $25 \times 0.24 =$ _____

(3) $717 - 408 =$ _____

(4) $639 \div 9 =$ _____

(5) $\frac{3}{4} - \frac{7}{12} =$ _____

(6) $5.75 - 0.75 =$ _____

(7) $12 \times 16 =$ _____

(8) $25^2 =$ _____

(9) $16 + 18 \div 3 - 6 =$ _____

*(10) $2025 \times 99 + 2024 =$ _____

(11) $43 \times 47 =$ _____

(12) The median of 10, 7, 24, 13 is _____

(13) $105 \times \frac{7}{15} =$ _____

(14) $44 \times 23 - 44 \times 18 =$ _____

(15) $15 \times 10 \times 15 =$ _____

(16) $318 + 58 + 42 =$ _____

(17) $71^2 =$ _____

(18) $34 + 28 + 22 + 16 + 10 =$ _____

(19) MMXXV = _____ (Arabic Numeral)

*(20) $454 \times 329 + 34 =$ _____

(21) $99 \times 96 =$ _____

(22) If $5x - 13 = 32$, then $x^2 =$ _____

(23) $5\frac{7}{12} + 6\frac{3}{4} =$ _____

(24) An $8\frac{1}{3}$% sales tax on \$60 is \$ _____

(25) $8\frac{1}{2} \times 2\frac{1}{2} =$ _____ (mixed number)

(26) $1.25 \times 1.6 \times 10 =$ _____

(27) 3 gallons = _____ cubic inches

(28) The GCD of 12, 36 and 24 is _____

(29) How many whole numbers evenly divide 44? _____

*(30) $221 \times 636 + 44 =$ _____

(31) $68 \times 48 =$ _____

(32) If a square, with area 81, and equilateral triangle have the same perimeter, the triangle side = _____

(33) If $1.75 - 0.25 = \boldsymbol{n}$, the $\boldsymbol{n}^{-1} =$ _____

(34) $-13^2 =$ _____

(35) 5 pints = _____ ounces

(36) 2 inches = _____ centimeters

(37) $58\frac{1}{3}$% of 48 is _____

(38) $876 \times 111 =$ _____

(39) The area of a square with a diagonal of 14 is _____

*(40) 5 miles = _____ feet

(41) For the sequence: 2, **n**, 10, **q**, 26, 37, . . . **q** + **n** equals _____

(42) $3^4 - 3^3 =$ _____

(43) $41 \times 75 =$ _____

(44) The number of elements in $\{2, 3, 5, 6\} \cap \{1, 2, 3, 6\}$ is _____

(45) 2 (base 4) × 32 (base 4) = _____ (base 4)

(46) The length of the edge of a cube with surface area 600 is _____

(47) The perimeter of a right triangle with leg 8 and hypotenuse 10 is _____

(48) The smallest prime number larger than 80 is _____

(49) The volume of a rectangular solid that measures 6 by 3 by x is 72. What is x? _____

*(50) $66500 \div 25 =$ _____

(51) What is the area of the trapezoid with bases $4\frac{2}{3}, 6\frac{2}{3}$ and height 9? _____

(52) What is the 9th term in the sequence: 1, 2, 3,…? ____

(53) $101 \times 857 =$ _____

(54) Three times a number added to 15 is 36. The number is _____

(55) What is the perimeter of a rectangle with diagonal 10 and length 8? _____

(56) The area of a rhombus with diagonals 12 and x is 48. What is x? _____

(57) $125 \times 32 =$ _____

(58) $(7^4 + 7 \times 9) \div 4$ has a remainder of _____

(59) If $28 - 2x > 44$, then $x <$ _____

*(60) $8060 \div 79 \times 101 =$ _____

(61) $32 + (-32) \div 8 =$ _____

(62) $18\frac{4}{7}$ weeks = _____ days

(63) 10 meters/sec = _____ km/hr

(64) 0.1333…= _____(common fraction)

(65) $\frac{7}{5} + \frac{5}{7} =$ _____

(66) The volume of a circular cylinder with radius 6 and length 25 is $\mathbf{k}\pi$. What is **k**? = _____

(67) The sum of the whole number divisors of 12 is _____

(68) $\frac{5! - 3!}{3!} =$ _____

(69) 275% of 160 = _____

*(70) 5 square yards = _____inches

(71) $286 \times 77 =$ _____

(72) $8\frac{1}{3}\% =$ _____ (common fraction)

(73) $45 \times 0.7333 \ldots =$ _____

(74) The surface area of a sphere with a diameter of 12 is $\boldsymbol{k}\pi$ and $\boldsymbol{k}$ = _____

(75) What is the probability of drawing a red ace from a standard deck of 52 cards? _____

(76) If the shortest distance between the points (4, 3) and (0, **x**) is 5, what is **x**? _____

(77) $4^3 \div 16 =$ _____

(78) 14% of **n** equals 15% of 28. **n** = _____

(79) $19 + 17 + 15 + \ldots + 1 =$ _____

*(80) $6875 \times 479 =$ _____

2024 – 2025 University Interscholastic League Junior High Number Sense Test C – Key

(1) 160

(2) 6

(3) 309

(4) 71

(5) $\frac{1}{6}$

(6) 5

(7) 192

(8) 625

(9) 16

*(10) 192375 – 212623

(11) 2021

(12) 11.5; $11\frac{1}{2}$; $\frac{23}{2}$

(13) 49

(14) 220

(15) 2250

(16) 418

(17) 5041

(18) 110

(19) 2025

*(20) 141930 – 156870

(21) 9504

(22) 81

(23) $12\frac{1}{3}$; $\frac{37}{3}$

(24) 5.00

(25) $21\frac{1}{4}$

(26) 20

(27) 693

(28) 12

(29) 6

*(30) 133570 – 147630

(31) 3264

(32) 12

(33) $\frac{2}{3}$

(34) -169

(35) 80

(36) 5.08; $5\frac{2}{25}$; $\frac{127}{25}$

(37) 28

(38) 97236

(39) 98

*(40) 25080 – 27720

(41) 22

(42) 54

(43) 3075

(44) 3

(45) 130

(46) 10

(47) 24

(48) 83

(49) 4

*(50) 2527 – 2793

(51) 51

(52) 9

(53) 86557

(54) 7

(55) 28

(56) 8

(57) 4000

(58) 0

(59) -8

*(60) 9790 – 10819

(61) 28

(62) 130

(63) 36

(64) $\frac{2}{15}$

(65) $2\frac{4}{35}$; $\frac{74}{35}$

(66) 900

(67) 28

(68) 19

(69) 440

*(70) 6156 – 6804

(71) 22022

(72) $\frac{1}{12}$

(73) 33

(74) 144

(75) $\frac{1}{26}$

(76) 0

(77) 4

(78) 30

(79) 100

*(80) 3128469 – 3457781

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 $.\overline{6}$.