2017 University Interscholastic League MS/JH Calculator Contest B

17Y-1.   −2090 + 3020 -- 1=_____

17Y-2.   42 − 12 + 42 -- 2=_____

17Y-3.   658 + 442 − 499 -- 3=_____

17Y-4.   21 − 39 + 61 − 53 -- 4=_____

17Y-5.   1160 + 292 − 827 − 1020 ------------------------------------- 5=_____

17Y-6.   144 + 29.9 − 78.4 − 186 + 44.7 ---------------------------- 6=_____

17Y-7.   −2.83 + 4.2 + 3.26 + 0.932 + 2.48 -------------------------- 7=_____

17Y-8.   (1.1 − 0.745) + (π − 1.45 − 1.51) ---------------------------- 8=_____

17Y-9.   144 x 63.7 x 142 --- 9=_____

17Y-10.   1870 x 2200 x 2640 x 1270 ----------------------------------10=_____

17Y-11.   What is the quotient of 23.7 and 1.14 if the quotient has a value
greater than one?--11=_____

17Y-12.   In Matt's jar of coins, he had 73 quarters, 39 dimes, 125 nickels
and 119 pennies. How much money did he have in all? ------------------12=$_____

17Y-13.   During the month of September, Natalie ran exactly 75 minutes
every single day in practice for cross country. How much time did she
spend running in the month of September?------------------------------13=_____ hours

17Y-14. (267/386)[82 – 113] --- 14=_____

17Y-15. 370/[326 x 286 x 88] -- 15=_____

17Y-16. $\{329/345\}\left[\dfrac{356}{218 + 394}\right]$ -- 16=_____

17Y-17. $\left[\dfrac{830}{142}\right][(771/194) + 2.29]$ ------------------------------------- 17=_____

17Y-18. $\left[\dfrac{(0.0638 + 0.167)}{131/154}\right]\left[\dfrac{15.4}{0.299}\right]$ ------------------------------------- 18=_____

17Y-19. $\dfrac{(206/134) + (154/376)}{(570 – 343)}$ ------------------------------------- 19=_____

17Y-20. $\dfrac{(0.0104)(0.13)}{197}(690 – 882)$ ------------------------------ 20=_____

17Y-21. (1.66)[93/82 x 87/78] – 1.8 ------------------------------------- 21=_____

17Y-22. $\dfrac{(\pi + 5.11 – 4.46)}{\{(0.0216 – 0.0198)/(18.2)\}}$ ------------------------------ 22=_____

17Y-23. $\dfrac{(\pi)(859/486)(322/832)}{(215/707)}$ ------------------------------------- 23=_____

17Y-24. During one of its circular orbits around our planet, the International Space Station (ISS) traveled with an average speed of 17,583 miles per hour (mph) and took 94.3 minutes to complete one orbit. What distance did the ISS travel in the one orbit? ----------------------24=_____ miles

17Y-25. One morning a 30-foot flagpole cast a shadow that measured 49 feet, 8.5 inches long. At the same time, how long of a shadow would Dan cast if he is standing 5 foot, 10 inches tall? --------------------------25=_____ feet

17Y-26. Elizabeth's car gets 18.7 miles per gallon (mpg) of fuel. If she drives 1375.6 miles, how much fuel does her car use? -------------------26=_____ gallons

17Y-27. $\dfrac{(0.0752 + 0.0279)(0.212 + 0.208)}{(1.49 \times 10^{11})}$ ------------------------- 27=_____

17Y-28. $(8.94 \times 10^{-4})\left[(27.4/36.5)(0.223/0.261)\right]$ -------------------- 28=_____

17Y-29. $(0.00599)\left[(0.0366/0.0318)(97.6 + 84.6)\right]$ ----------------- 29=_____

17Y-30. $\dfrac{1}{-278} + \dfrac{1}{(\pi)(59.5 - 157)}$ ------------------------------------- 30=_____

17Y-31. $\dfrac{1}{-1.16} + \dfrac{1}{(0.298 - 0.925)}$ -------------------------------------- 31=_____

17Y-32. $(384)\left[\dfrac{8.85}{(4.34 \times 10^{-10})}\right]$ ------------------------------------- 32=_____

17Y-33. $\left[\dfrac{1/313}{1/157}\right] + [0.955]$ ------------------------------------- 33=_____

17Y-34. $\dfrac{1}{382} - \dfrac{1}{(154 + 257)}$ ------------------------------------- 34=_____

17Y-35.   One day last summer it rained 3.20 inches of rain on my farm of 18 acres. If there are 43,560 square feet in one acre and 231 cubic inches in one gallon, how many gallons of water fell on the farm? ---------------35=_____ gallons

17Y-36.   Sharon's science grade average for the fourth and fifth six weeks was 84 and 90 respectively. What percent increase did this change in six weeks grade average represent? ---36=_____ %

17Y-37.	17Y-38.

17Y-37.

CIRCLE

Radius = 0.0082
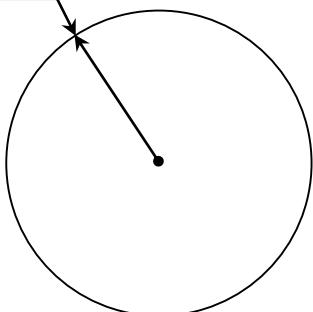
Circumference = ?

17Y-37=_____

17Y-38.

RECTANGLE

45.1

145

Perimeter = ?

17Y-38=_____

17Y-39. $\dfrac{(35700 + 13200)^2}{(0.0115 - 0.0113)^3}$ ---39=_____

17Y-40. $(20.1 + 7.77)^2(0.0826 + 0.11)^2$ --------------------------40=_____

17Y-41. $\left[\dfrac{1070 + (1/(4.51\times10^{-4}))}{(1570/1210) - 1.29}\right]^2$ --------------------------------41=_____

17Y-42. $\sqrt{16.5} + \sqrt{42.9 + 35.1} - (\pi)\sqrt{14.4}$ --------------------------------42=_____

17Y-43. $(1/\pi)\sqrt[4]{\dfrac{6.88 + 5.51}{3.9 - 1.2}}$ ---43=_____

17Y-44. $(105)\sqrt{284 + 678 + 317}$ -------------------------------------44=_____

17Y-45. $(69700)\sqrt{1790 + 3540 - 3130}$ --------------------------------45=_____

17Y-46. $\sqrt[4]{1.52 - 2960/2980} + 1/\sqrt{12.6 + 2.9}$ ----------------------46=_____

17Y-47.   Genny looks and spots a small (10-inch) diameter balloon 1,320 feet away. The balloon now rises straight up 90 feet above the spot she first saw the balloon. What angle, relative to the ground, does Genny now look up to see the balloon? -------------------------------------47=_____ °

17Y-48.   If the reciprocals of 42.9 and 77.8 are added, what is the reciprocal of that sum? ---48=_____

17Y-49.   RIGHT TRIANGLE
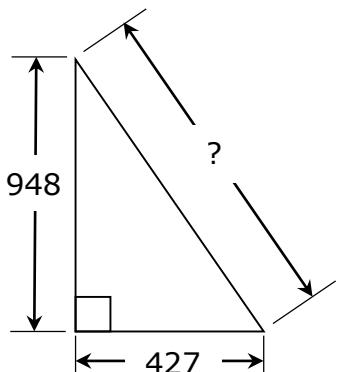
17Y-49=_____

17Y-50.   RIGHT TRIANGLE
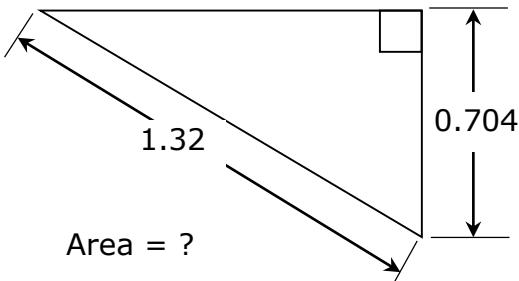
17Y-50=_____

17Y-51. $\left[\dfrac{17.1 - 7.35 + \sqrt{312/16.9}}{-48.3 + 120}\right]^{-5}$ ------------------------------------51=_____

17Y-52. $\left[\dfrac{1570 + 838 + \sqrt{5.61 \times 10^6 + 4.93 \times 10^6}}{193/480}\right]^{4}$ ------------------52=_____

17Y-53. $\dfrac{(1270 + 886 - 1180)^4}{\sqrt{2.39 \times 10^5 + 1.02 \times 10^5 + 3.43 \times 10^5}}$ ----------------------53=_____

17Y-54. $\sqrt{\dfrac{1/(15.7 - 3.98)}{(18.9)(4.6 + 6.17)^6}}$ ------------------------------------54=_____

17Y-55. $247 + \sqrt{(222)(590)} - (814 + 128)$ -------------------------55=_____

17Y-56. $\sqrt{\dfrac{(17300)(41500)}{(34500)(20000)}} - 1.02 + 0.464$ ---------------------56=_____

17Y-57. $\sqrt{\dfrac{1/(51.9 - 34.4)}{(9.54)(781 + 786)^{-5}}}$ -------------------------------57=_____

17Y-58.   (deg) $\tan(29.7°) + (69.6/17.9)$ -----------------------------58=_____

17Y-59.   The distance traveled when something is uniformly changing speeds (accelerating) is found by taking the average of the beginning and final speeds and multiplying that average by the time it took to change speeds. So, how far does a car travel during the 5.0 seconds it took to uniformly speed up from 55 miles per hour (mph) to 65 mph? -----------59=_____ feet

17Y-60.   George Washington was born 11 years before Thomas Jefferson. In 1770 Washington's age was 3 years more than 7 times the age of Jefferson in 1748. How old was Washington in 1750? -------------------60=_____ years(Integer)

17Y-61.

RIGHT CYLINDER

24.2

56.2
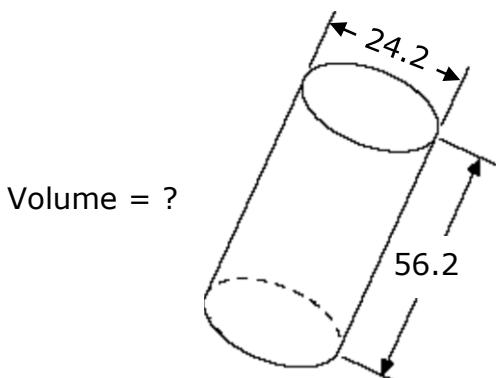
Volume = ?

17Y-61=_____

17Y-62.

SPHERE

Diameter = 1080
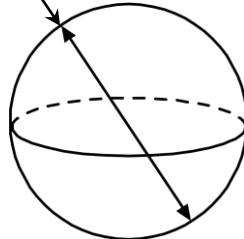
Volume = ?

17Y-62=_____

17Y-63. $\dfrac{17! - 15!}{15!}$ --63=_____

17Y-64. (deg) $(6.04 - 32.9)\cos(20.5°)$ ---------------------------------64=_____

17Y-65. (deg) $\dfrac{\tan(2.42°)}{2760}$ --------------------------------------65=_____

17Y-66. (deg) $[8]\tan(218° - 228°)$ -----------------------------------66=_____

17Y-67. (deg) $(24.5 - 10.1)\sin(2.4°) + 0.459$ -----------------------67=_____

17Y-68. (deg) $\dfrac{\sin(145°)}{20.9 + 118}$ ----------------------------------68=_____

17Y-69. (deg) $\dfrac{\sin(7.84°)}{\tan(7.84°)}[86.4]$ ------------------------------69=_____

17Y-70. $(81.1 - 74.5 + 79.5)^{1/3}$ ----------------------------------70=_____

17Y-71. In the month of August, I received 1.18 inches of rain. Last year I received 0.92 inches of rain in the same month. What is the percent difference in the amount of rain I received?----------------------------71=_____%

17Y-72. A square piece of metal that measured 1.75 inches on each side was placed on the hot concrete and after a while its diagonal was measured to be 2.5% longer. What was the new area of the square?--------------72=_____in²

SAMPLE TEST & KEY

17Y-73.

SEMICIRCLE AND SQUARE

Area = ?   0.0628
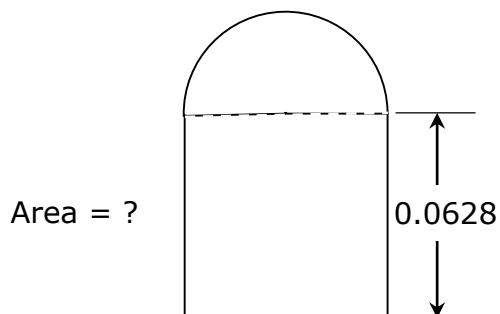
17Y-73=_____

17Y-74.

SQUARE WITH ISOSCELES TRIANGLE CAVITY

Area = ?   20   15   10   10
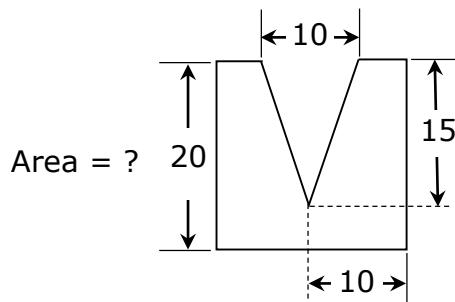
17Y-74=_____

17Y-75. $\dfrac{\text{Log}(4.98 \times 10^8 + 5.69 \times 10^8)}{16.8}$ ----------------------------------75=_____

17Y-76. $\text{Ln}\left[\dfrac{70.5 + 115 + 86.8}{290 + 454 - 343}\right]$ ----------------------------------76=_____

17Y-77. $(38200)10^{(0.565)(1.59)}$ ----------------------------------77=_____

17Y-78. $\text{Ln}\left[\dfrac{713 + 355 + 147}{25.4 - 5.58 - 8.13}\right]$ ----------------------------------78=_____

17Y-79. $4 + 6 + 8 + \ldots + 430$ -------------------------------------79=_____

17Y-80. $-\dfrac{1}{(9.1)} + \dfrac{1}{3(9.1)^3} - \dfrac{1}{5(9.1)^5} + \dfrac{1}{7(9.1)^7}$ ------------------80=_____

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17Y-1 = 930
= 9.30×10^2

17Y-2 = 72.0
= 7.20×10^1

17Y-3 = 601
= 6.01×10^2

17Y-4 = −10.0
= -1.00×10^1

17Y-5 = −395
= -3.95×10^2

17Y-6 = −45.8
= -4.58×10^1

17Y-7 = 8.04
= 8.04×10^0

17Y-8 = 0.537
= 5.37×10^{-1}

17Y-9 = 1.30×10^6

17Y-10 = 1.38×10^{13}

17Y-11 = 20.8
= 2.08×10^1

17Y-12 = 29.59

17Y-13 = 37.5
= 3.75×10^1

17Y-14 = -21.4
= -2.14×10^1

17Y-15 = 4.51×10^{-5}

17Y-16 = 0.555
= 5.55×10^{-1}

17Y-17 = 36.6
= 3.66×10^1

17Y-18 = 14.0
= 1.40×10^1

17Y-19 = 0.00858
= 8.58×10^{-3}

17Y-20 = -0.00132
= -1.32×10^{-3}

17Y-21 = 0.300
= 3.00×10^{-1}

17Y-22 = 38300
= 3.83×10^4

17Y-23 = 7.07
= 7.07×10^0

17Y-24 = 27600
= 2.76×10^4

17Y-25 = 9.67
= 9.67×10^0

17Y-26 = 74.4
= 7.44×10^1

17Y-27 = 2.91×10^{-13}

17Y-28 = 0.000573
= 5.73×10^{-4}

17Y-29 = 1.26
= 1.26×10^0

17Y-30 = -0.00686
= -6.86×10^{-3}

17Y-31 = -2.46
= -2.46×10^0

17Y-32 = 7.83×10^{12}

17Y-33 = 1.46
= 1.46×10^0

17Y-34 = 0.000185
= 1.85×10^{-4}

17Y-35 = 1.56×10^6

17Y-36 = 7.14
= 7.14×10^0

17Y-37 = 0.0515
= 5.15×10^{-2}

17Y-38 = 380
= 3.80×10^2

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17Y-39 $= 2.99 \times 10^{20}$

17Y-40 $= 28.8$
$= 2.88 \times 10^{1}$

17Y-41 $= 1.91 \times 10^{11}$

17Y-42 $= 0.972$
$= 9.72 \times 10^{-1}$

17Y-43 $= 0.466$
$= 4.66 \times 10^{-1}$

17Y-44 $= 3760$
$= 3.76 \times 10^{3}$

17Y-45 $= 3.27 \times 10^{6}$

17Y-46 $= 1.11$
$= 1.11 \times 10^{0}$

17Y-47 $= 3.90$
$= 3.90 \times 10^{0}$

17Y-48 $= 27.7$
$= 2.77 \times 10^{1}$

17Y-49 $= 1040$
$= 1.04 \times 10^{3}$

17Y-50 $= 0.393$
$= 3.93 \times 10^{-1}$

17Y-51 $= 3470$
$= 3.47 \times 10^{3}$

17Y-52 $= 3.91 \times 10^{16}$

17Y-53 $= 1.10 \times 10^{9}$

17Y-54 $= 5.38 \times 10^{-5}$

17Y-55 $= -333$
$= -3.33 \times 10^{2}$

17Y-56 $= 0.464$
$= 4.64 \times 10^{-1}$

17Y-57 $= 7.52 \times 10^{6}$

17Y-58 $= 4.46$
$= 4.46 \times 10^{0}$

17Y-59 $= 440$
$= 4.40 \times 10^{2}$

17Y-60 $= 18$
Integer

17Y-61 $= 25800$
$= 2.58 \times 10^{4}$

17Y-62 $= 6.60 \times 10^{8}$

17Y-63 $= 271$
$= 2.71 \times 10^{2}$

17Y-64 $= -25.2$
$= -2.52 \times 10^{1}$

17Y-65 $= 1.53 \times 10^{-5}$

17Y-66 $= -1.41$
$= -1.41 \times 10^{0}$

17Y-67 $= 1.06$
$= 1.06 \times 10^{0}$

17Y-68 $= 0.00413$
$= 4.13 \times 10^{-3}$

17Y-69 $= 85.6$
$= 8.56 \times 10^{1}$

17Y-70 $= 4.42$
$= 4.42 \times 10^{0}$

17Y-71 $= -22.0$
$= -2.20 \times 10^{1}$

17Y-72 $= 3.22$
$= 3.22 \times 10^{0}$

17Y-73 $= 0.00549$
$= 5.49 \times 10^{-3}$

17Y-74 $= 325$
$= 3.25 \times 10^{2}$

17Y-75 $= 0.537$
$= 5.37 \times 10^{-1}$

17Y-76 $= -0.387$
$= -3.87 \times 10^{-1}$

17Y-77 $= 302000$
$= 3.02 \times 10^{5}$

17Y-78 $= 4.64$
$= 4.64 \times 10^{0}$

17Y-79 $= 46400$
$= 4.64 \times 10^{4}$

17Y-80 $= -0.109$
$= -1.09 \times 10^{-1}$