

Test #3 - TMSCA Calculator - 2013-2014

11. What is the mean of the first five terms of the Fibonacci sequence?

$$\begin{aligned} &1, 1, 2, 3, 5 \\ \bar{X} &= \frac{1+1+2+3+5}{5} \\ &= 2.40 \end{aligned}$$

12. What is the perimeter of a rectangle with a length of 2.28 feet and a width that is half the length?

$$\begin{aligned} P &= 2(L+W) \\ &= 2(2.28+1.14) \\ &= 6.84 \end{aligned}$$

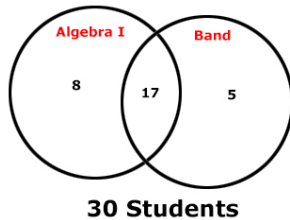
13. Joshua purchased a set of chess pieces for \$24.95 and a board for \$12.79. If tax is 6.25%, what was the amount of tax he paid on his purchases?

$$(24.95 + 12.79)(.0625) = 2.36$$

24. What is the forty-first triangular number?

$$\begin{aligned} 41st &= \frac{n(n+1)}{2} \\ &= \frac{41(41+1)}{2} \\ &= 861 \end{aligned}$$

25. Twenty-five students took Algebra I, twenty-two students took band, and seventeen students took both. How many students are there altogether?



26. Lynn spent three-fourths of her savings on furniture and the rest on a T.V. If the T.V. cost her \$249.50, what was the amount of her original savings?

$$\begin{aligned} &\frac{3}{4}\text{savings on furniture} \\ &\frac{1}{4}\text{savings on TV} - \$249.50 \\ (4)\left(\frac{1}{4}\right) &= (4)(249.50) \\ &= \$998.00 \end{aligned}$$

35. A student weighing 125 pounds climbed a vertical distance of 42 feet in 15 seconds. How much work did they do?

$$\begin{aligned} \text{Work} &= (\text{Force})(\text{Distance}) \\ &= (125)(42) \\ &= 5250 \end{aligned}$$

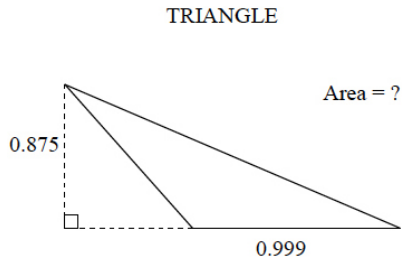
36. Calculate -2^{5221}

$$\begin{aligned} -2^{5221} &= 5221(\log 2) \\ &= 1571.677607... \\ &\text{Answer will be negative because the exponent is odd.} \\ &= (10^{.677607...})(10^{1571}) \\ &= -4.76 \times 10^{1571} \end{aligned}$$

$$37. A = \frac{bh}{2}$$

$$= \frac{(999)(.875)}{2}$$

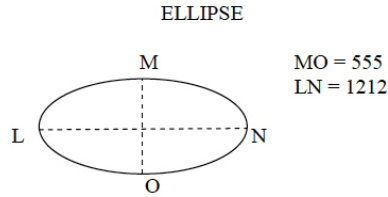
$$= .437$$



$$38. A = \pi r_1 r_2$$

$$= \pi \left(\frac{555}{2} \right) \left(\frac{1212}{2} \right)$$

$$= 528000$$



Area = ?

47. A segment three feet long is divided into nine equal parts. What fraction of a foot are two parts of the segment?

Each fragment is 4 inches long

Two fragments are 8 inches

$$\frac{8}{12} = \frac{2}{3}$$

$$= .667$$

48. The sum of the complement and supplement of an angle is 192. What is the measurement of the angle in degrees?

$$(90 - x) + (180 - x) = 192$$

$$270 - 2x = 192$$

$$270 - 192 = 2x$$

$$x = \frac{270 - 192}{2}$$

$$x = 39.0$$

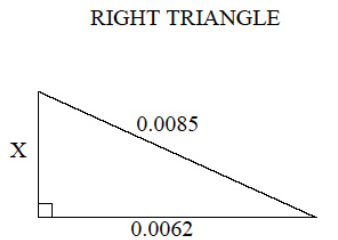
$$49. a^2 + b^2 = c^2$$

$$a^2 = c^2 - b^2$$

$$a = \sqrt{c^2 - b^2}$$

$$a = \sqrt{.0085^2 - .0062^2}$$

$$a = .00581$$

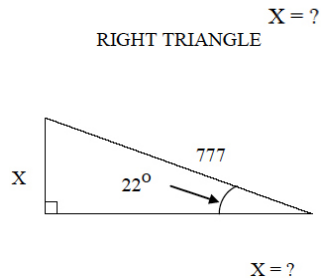


$$50. \sin \theta = \frac{\text{opposite}}{\text{hypotenuse}}$$

$$\frac{\sin 22^\circ}{1} = \frac{x}{777}$$

$$x = (\sin 22^\circ)(777)$$

$$= 291$$



59. What is the slope of the line with the equation $2x + y = -8$?

$y = mx + b$ (where m = slope and b = y-intercept)

$$2x + y = -8$$

$$y = -2x - 8$$

$$m = -2.00$$

60. How many liters of water must be added to 125 liters of a 72% acid solution in order to produce a 30% acid solution?

$$\text{Before} = \text{After}$$

$$(125)(72\%) = (x + 125)(30\%)$$

$$(125)(.72) = (x + 125)(.3)$$

$$90 = .3x + 37.5$$

$$.3x = 90 - 37.5$$

$$x = \frac{90 - 37.5}{.3}$$

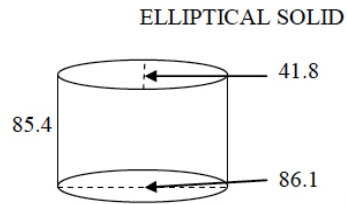
$$x = 175$$

61. $V = Bh$

$$= \pi r_1 r_2 h$$

$$= \pi \left(\frac{41.8}{2} \right) \left(\frac{86.1}{2} \right) (85.4)$$

$$= 241000$$



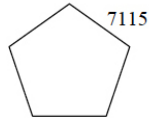
Volume = ?

62. $A = \frac{nb^2}{4 \tan\left(\frac{180}{n}\right)}$

$$= \frac{(5)(7115)^2}{4 \tan\left(\frac{180}{5}\right)}$$

$$= 8.71 \times 10^7$$

REGULAR PENTAGON



Area = ?

71. What are the odds of rolling a standard six sided die and having land on a six?

$$\text{Odds(rolling a 6 on a six sided die)} = \frac{1}{5}$$

$$= .200$$

72. Jimmy travels north from spot A at 57 mph. Jenny travels east from spot A at the same time as Jimmy at 68 mph. In how many minutes are Jimmy and Jenny 500 miles apart?

Using the Pythagorean Theorem, they are 88.7299 . . . miles apart after 1 hour.

500 miles divided by 88.729 . . . is the time in hours when they are 500 miles apart.

5.635 . . . hours is multiplied by 60 to get the number of minutes

The answer is 338 minutes.

73. $l = \sqrt{a^2 + b^2}$

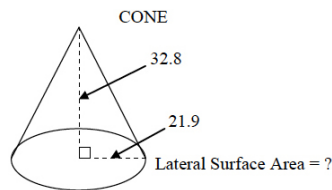
$$= \sqrt{32.8^2 + 21.9^2}$$

$$= 39.439\dots$$

$$LSA = \pi r l$$

$$= \pi (21.9) (\sqrt{32.8^2 + 21.9^2})$$

$$= 2710$$



Lateral Surface Area = ?

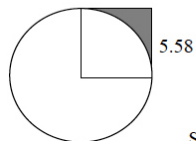
74. $SA = A_{\text{square}} - A_{\frac{1}{4}\text{circle}}$

$$= s^2 - \frac{\pi r^2}{4}$$

$$= 5.58^2 - \frac{\pi (5.58)^2}{4}$$

$$= 6.68$$

SQUARE AND CIRCLE



Shaded Area = ?