

Test #2 - TMSCA Calculator - 2013-2014

11. The Fibonacci sequence is given as 1, 1, 2, 3, 5, 8, 13, ... where each term is the sum of the previous two terms. What is the mode of the Fibonacci sequence?

1,1,2,3,4,5 . . .

Mode = number occurring most frequently

1.00

12. What is the circumference of a circle with a diameter that measures 72.25 cm?

$$C = \pi d$$

$$= \pi(72.25)$$

$$= 227$$

13. Fifteen thousand two hundred eighty is what percent more than six thousand?

6000 *Ent*

15280 *%chg*

24. How many distinct diagonals does a polygon with twenty-nine sides have?

$$\begin{aligned} \text{number of distinct diagonals} &= \frac{n(n-3)}{2} \\ &= \frac{29(29-3)}{2} \\ &= 377 \end{aligned}$$

25. Darrell has \$325 in a savings account. The interest rate is 5.25% per year simple interest. How much will he have after 7 years?

$$A = P(1+r)^t$$

Simple Interest

Compound Interest

$$= 325(1+.0525)^7$$

$$A_t = P(1+r)^t$$

$$A_t = P\left(1 + \frac{r}{n}\right)^m$$

$$= \$464.98$$

26. If the length of the side of a square is doubled, what is the ratio of the area of the original square to the area of the new square?

$$\begin{aligned} \text{Ratio} &= \frac{A_{\text{original}}}{A_{\text{new square}}} \\ &= \frac{(x)^2}{(2x)^2} \\ &= \frac{x^2}{4x^2} \\ &= \frac{1}{4} \\ &= .250 \end{aligned}$$

35. A machine fills 250 bottles in 12 minutes. How many minutes, at this rate, will it take for this machine to fill 925 bottles?

$$\frac{250}{12} = \frac{925}{x}$$

$$x = \frac{(12)(925)}{250}$$

$$= 44.4$$

36. 1010110 Base 2 is what value in Base 10?

$$1x2^6 = 64$$

$$0x2^5 = 0$$

$$1x2^4 = 16$$

$$0x2^3 = 0$$

$$1x2^2 = 4$$

$$1x2^1 = 2$$

$$0x2^0 = 0$$

$$\text{Sum} = 86 \text{ int}$$

Can also use conversion key on calculator:

Base 4

1010110

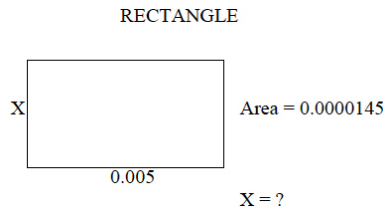
Base 1

37. $A = LW$

$$W = \frac{A}{L}$$

$$= \frac{.0000145}{.005}$$

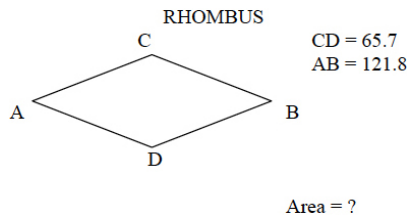
$$= .00290$$



38. $A = \frac{d_1 d_2}{2}$

$$= \frac{(65.7)(121.8)}{2}$$

$$= 4000$$



47. A car travels 75 km per hour. How many miles does the car travel one minute?

$$\frac{75 \text{ km}}{1 \text{ hr}} \times \frac{1 \text{ hr}}{60 \text{ min}} \times \frac{1 \text{ mile}}{1.609 \text{ km}} = .777 \text{ miles/min}$$

48. Samantha completed all the number crunching problems on her calculator test. She did no stated or geometry problems. What is her highest possible score?

14 stated problems + 8 drawings = 22 S&G problems

$$\text{Score} = (80)(5) - (22)(9)$$

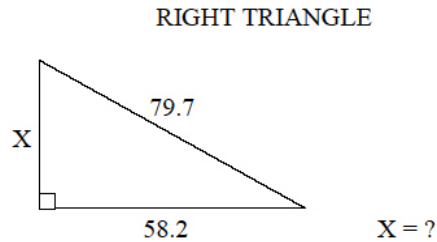
$$= 400 - 198$$

$$= 202$$

49. $x = \sqrt{c^2 - b^2}$

$$= \sqrt{79.7^2 - 58.2^2}$$

$$= 54.5$$

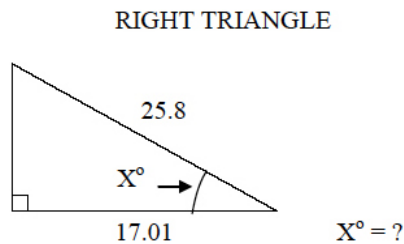


50. $\cos \theta = \frac{\text{adjacent}}{\text{hypotenuse}}$

$$\theta = \cos^{-1} \frac{\text{adjacent}}{\text{hypotenuse}}$$

$$\theta = \cos^{-1} \frac{17.01}{25.8}$$

$$\theta = 48.8$$



59. The sum of two numbers is sixty-four. The difference of the two numbers is eighteen. What is the smaller number?

$$x + y = 64 \qquad y = 64 - x$$

$$\frac{x - y = 18}{2x = 82} \qquad = 64 - 41$$

$$x = 41 \qquad = 23.0$$

60. The value of y varies inversely as x. If y = 28.215 when x = 17.218, find the value of x when y = 0.118.

$$\frac{x}{1} = \frac{k}{y} \qquad \frac{x}{1} = \frac{k}{y}$$

$$k = xy \qquad x = \frac{485.80587}{.118}$$

$$= (17.218)(28.215) \qquad = 4120$$

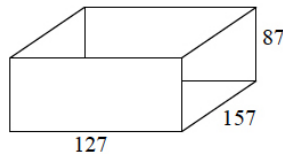
$$= 485.80587$$

61. $SA = LW + LH + WH$

$$= [(157)(127) + (157)(87) + (127)(87)](2)$$

$$= 89300$$

RECTANGULAR PRISM



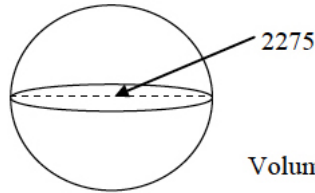
Surface Area = ?

62. $V = \frac{4}{3}\pi r^3$

$$= \frac{4}{3}\pi \left(\frac{2275}{2}\right)^3$$

$$= 6.17 \times 10^9$$

SPHERE



Volume = ?

71. What is the probability of rolling a standard six sided die and having it land on a two?

$$P(2 \text{ on a 6-sided die}) = \frac{1}{6}$$

$$= .167$$

72. Darrell put \$325 in a savings account. The interest rate is 5.25% compounded annually. How much will he have after 7 years?

$$A_t = P(1+r)^t$$

$$= 325(1+.0525)^7$$

$$= \$464.98$$

73. $d = s\sqrt{2}$

$$s = \frac{d}{\sqrt{2}}$$

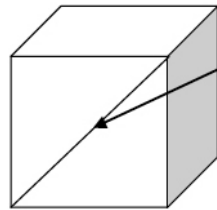
$$s = \frac{17.11}{\sqrt{2}}$$

$$SA = 6s^2$$

$$= 6\left(\frac{17.11}{\sqrt{2}}\right)^2$$

$$= 878$$

CUBE



Diagonal of face = 17.11

Surface Area = ?

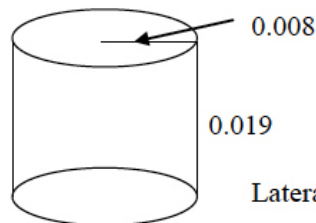
74. $LSA = Ch$

$$= 2\pi rh$$

$$= 2\pi(.008)(.019)$$

$$= .000955$$

CYLINDER



Lateral Surface Area = ?