

Test #13 - TMSCA Calculator - 2013-2014

11. If the first number of a Fibonacci Sequence is 1, what is the median of the first seven terms?

By definition, the first two numbers in the Fibonacci sequence are 1 and 1, or 0 and 1, depending on the chosen starting point of the sequence, and each subsequent number is the sum of the previous two.

1,1,2,3,5,8,13

The median is 3.00

12. What is the diagonal of a square with a side that measures 0.002 cm?

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

$$d = .002\sqrt{2}$$

$$d = .00283$$

13. The sum of three consecutive integers is one thousand, five hundred eighty-seven. What is the smallest integer?

$$(x) + (x + 1) + (x + 2) = 1587$$

$$3x + 3 = 1587$$

$$3x = 1584$$

$$x = \frac{1584}{3}$$

$$x = 528 \text{ int}$$

24. The length of an Olympic-size swimming pool is fifty meters. What is this length in yards?

Use conversion key on calculator

$$50 \text{ m} = 5000 \text{ cm}$$

Push conversion key to get inches

Divide by 36 to convert inches to yd

Ans: 54.7

25. Two trains leave the station at the same time, one traveling east and the other west. The first train travels at 51 mph and the other at 38 mph. How many hours will it take for the trains to be 200 miles apart?

∴ The cars are separating at 89 miles/hr

$$d = rt$$

$$t = \frac{d}{r}$$

$$t = \frac{200}{89}$$

$$t = 2.25$$

26. A cylindrical tank holds 8,111 ounces of water. How many liters is this?

Keyboard Sequence

$$8111 \text{ oz} \cdot 128 \text{ oz/gal} \text{ Ent}$$

Green Liter key

Liquid Measures

$$1 \text{ Cup} = 8 \text{ Ounces}$$

$$16 \text{ ounces} = 1 \text{ Pint}$$

$$32 \text{ ounces} = 1 \text{ Quart}$$

$$128 \text{ ounces} = 1 \text{ Gallon}$$

$$2 \text{ Pints} = 1 \text{ Quart}$$

$$4 \text{ Quarts} = 1 \text{ Gallon}$$

$$8 \text{ Gallons} = 1 \text{ Bushel}$$

$$1 \text{ Gallon} = 3.785 \text{ Liters}$$

$$1 \text{ Liter} = 0.264 \text{ Gallon}$$

$$1 \text{ Liter} = 1.0567 \text{ Quarts}$$

35. Kenny and Ben go out to dinner. Their total bill was \$17.86. If Ben paid \$3.28 more than Kenny, how much did Ben pay for his meal?

$$(x) + (x + 3.28) = 17.86$$

$$2x + 3.28 = 17.86$$

$$2x = 17.86 - 3.28$$

$$x = \frac{17.86 - 3.28}{2}$$

$$x = 7.29$$

$$\text{Ben} = 7.29 + 3.28$$

$$= \$10.57$$

36. 77727 Base 8 is what value in Base 10?

$$77727_8 = \text{_____}_{10}$$

$$= (7 \times 8^4) + (7 \times 8^3) + (7 \times 8^2) + (2 \times 8^1) + (7 \times 8^0)$$

$$= 32727$$

37. $A = \pi r^2$

$$r = \sqrt{\frac{A}{\pi}}$$

$$r = \sqrt{\frac{612\pi}{\pi}}$$

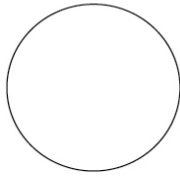
$$r = \sqrt{612}$$

$$d = 2r$$

$$d = 2\sqrt{612}$$

$$d = 49.5$$

CIRCLE



Area = 612π

Diameter = ?

38. $A = .00595$

$$s = \sqrt{A}$$

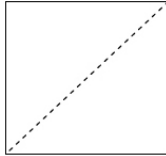
$$d = s\sqrt{2}$$

$$d = \sqrt{A}\sqrt{2}$$

$$d = \sqrt{.00595}\sqrt{2}$$

$$d = .109$$

SQUARE



Area = 0.00595

Diagonal = ?

47. Cindi worked through #72 on her calculator test. Her final score was 243. How many problems did she get wrong?

$$(72)(5) = 360 \quad (\text{If all were correct})$$

$$360 - 243 = 117 \quad (\text{Number of points lost})$$

$$\frac{117}{9} = 13 \quad (\text{Number of problems wrong})$$

48. What is the area of the largest square that will fit inside of a circle with an area of 111 cm^2 ?

$$A = \pi r^2$$

$$r = \sqrt{\frac{A}{\pi}}$$

$$r = \sqrt{\frac{111}{\pi}}$$

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

$$2r = s\sqrt{2}$$

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

$$s = \frac{2\sqrt{\frac{111}{\pi}}}{\sqrt{2}}$$

$$A = s^2$$

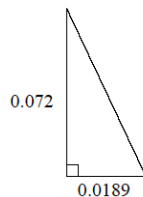
$$A = 70.7$$

49. $P = a + b + c$

$$= .072 + .0189 + \sqrt{.072^2 + .0189^2}$$

$$= .165$$

RIGHT TRIANGLE



Perimeter = ?

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

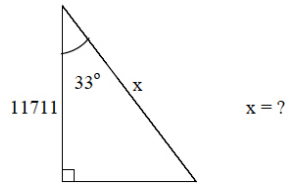
$$\frac{1}{1} = \frac{\text{adjacent}}{\text{hypotenuse}}$$

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

$$\text{hypotenuse} = \frac{11711}{\cos 33^\circ}$$

$$\text{hypotenuse} = 14000$$

RIGHT TRIANGLE



59. What is the slope the line that is perpendicular to the line that passes through (5, -7) and (6, 1)?

$$m = \frac{Y_2 - Y_1}{X_2 - X_1}$$

$$m = \frac{1 - (-7)}{6 - 5}$$

$$m = \frac{8}{1}$$

The slope of a line perpendicular to this line, has an opposite sign and its reciprocal

$$m = -\frac{1}{8}$$

$$m = -.125$$

60. Scott counted his collection of two dollar bills and fifty cent pieces. He has half as many two dollar bills as he does fifty cent pieces. The total value of his collection is \$192. How many fifty cent pieces does he have in his collection?

x = the number of 2 dollar bills

2x = the number of 50 cent pieces

$$x + 2x = \$192.00$$

$$2(x) + 2x(.50) = \$192.00$$

$$2x + x = \$192.00$$

$$2x(.50) + x(2.00) = \$192.00$$

$$1x + 2x = \$192.00$$

$$3x = \$192.00$$

$$x = 64 (\$2.00 \text{ bills})$$

$$2x = 128 (\$0.50 \text{ pieces})$$

61. $A = \pi r^2$

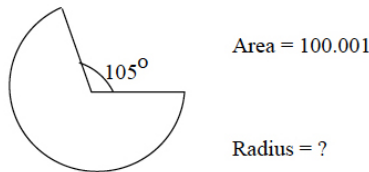
$$A = \frac{255}{360} \pi r^2$$

$$r = \sqrt{\frac{A}{\frac{255}{360} \pi}}$$

$$r = \sqrt{\frac{100.001}{\frac{255}{360} \pi}}$$

$$r = 6.70$$

SECTOR OF A CIRCLE



Area = 100.001

Radius = ?

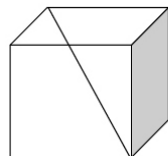
62. $V = e^3$ $d = e\sqrt{3}$

$$e = \sqrt[3]{V} \quad d = \sqrt[3]{V} \sqrt{3}$$

$$d = \sqrt[3]{.0281} \sqrt{3}$$

$$d = .527$$

CUBE



Volume = 0.0281

Inner Diagonal = ?

71. What is the probability of rolling a die in the shape of a dodecahedron, numbered 1 to the number of faces, and it landing on an 8?

dodecahedron = 12 faces

$$P(8) = \frac{1}{12}$$

$$= .0833$$

72. Ms. Mandy gave a test that had 15 questions with 5 different answer choices and 15 True/False questions. How many different possible outcomes are there?

Ans: 1.00×10^{15}

73. $s =$ semi-perimeter

$$s = \frac{25 + 43 + 62}{2}$$

$$s = 65$$

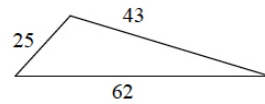
$$A = \sqrt{s(s-a)(s-b)(s-c)}$$

$$A = \sqrt{65(65-25)(65-43)(65-62)}$$

$$A = 414$$

SCALENE TRIANGLE

Area = ?



74. $V = V_{\text{cube}} - V_{\text{pyramid}}$

$$V = e^3 - \frac{Bh}{3}$$

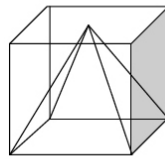
$$V = e^3 - \frac{(e^2)(e)}{3}$$

$$V = e^3 - \frac{e^3}{3}$$

$$V = 777^3 - \frac{777^3}{3}$$

$$V = 3.13 \times 10^8$$

CUBE AND PYRAMID



Edge of Cube = 777
Height of pyramid = 777

Volume between
Cube and Pyramid = ?