

CALCULATOR APPLICATIONS TIPS (NOVEMBER 2020)

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1. Cell phones at the store that Joy was looking at cost \$85, \$110, \$250 and \$550. Calculate the mid-range of the cell phone prices?

$$1 = \$ \underline{\hspace{2cm}}$$

Note : The mid-range of a set of numbers is the average of the smallest and largest numbers in the set.

$$(85 + 550)/2 = 317.5 \quad ; \quad \text{Answer} : \$317.50$$

2. Charlie purchased regular gas at \$2.659 per gallon and diesel at \$3.359 per gallon. His total purchase cost \$261.02. He bought 15 more gallons of diesel than gas. Calculate the number of gallons of diesel he purchased.

$$2 = \underline{\hspace{2cm}}$$

Let D = number of gallons of diesel he purchased

$D - 15$ = number of gallons of gas purchased

$$2.659(D - 15) + 3.359D = 261.02$$

$$2.659D - 2.659(15) + 3.359D = 261.02$$

$$(2.659 + 3.359)D = 261.02 + 2.659(15)$$

$$D = \frac{261.02 + 2.659(15)}{2.659 + 3.359} = 50.0$$

3. A square is inscribed in a circle whose area is 312.8. Find the area between the square and the circle. $3 = \underline{\hspace{2cm}}$

$$\text{Area of the circle} = \pi r^2 = 312.8 \quad ; \quad r = \sqrt{\frac{312.8}{\pi}}$$

$$\text{Diagonal of the square} = 2(\text{radius}) = 2r$$

$$\begin{aligned} \text{Area of the square} &= (1/2)(\text{diagonal})^2 = (1/2) \left(2\sqrt{\frac{312.8}{\pi}} \right)^2 \\ &= \left(\frac{1}{2} \right) (4) \left(\frac{312.8}{\pi} \right) = \frac{2(312.8)}{\pi} \end{aligned}$$

$$\text{Area of circle} - \text{Area of square} = 312.8 - \frac{2(312.8)}{\pi} = 114$$

4. Find the area of a regular pentagon whose perimeter is 551.7.

$$4 = \underline{\hspace{4cm}}$$

$$\text{side} = 551.7/5$$

$$\text{Area of an n-gon} = \frac{\frac{n \text{side}^2}{4 \tan\left(\frac{180}{n}\right)}}{4 \tan\left(\frac{180}{5}\right)} = 2.09 \times 10^4$$

5. The inner diagonal of a cube measures 1.82×10^4 in. Calculate the length of the diagonal of a face of the cube.

$$5 = \underline{\hspace{4cm}} \text{ in}$$

$$\text{Inner diagonal} = \text{edge}\sqrt{3}$$

$$1.82 \times 10^4 = e\sqrt{3} \quad ; \quad e = \frac{1.82 \times 10^4}{\sqrt{3}}$$

The face of a cube is a square and the length of the side of the square (face) is equal to the length of the edge of the cube.

$$\text{Diagonal of a square} = \text{side}\sqrt{2} = \text{edge}\sqrt{2}$$

$$= \left(\frac{1.82 \times 10^4}{\sqrt{3}} \right) (\sqrt{2}) = 1.49 \times 10^4$$