

Key

HW WORKSHEET:

Writing and Solving Multi-step equations from real-world scenarios

1.) David is collecting money for the student council t-shirt sale. He collected money from Joe for 14 t-shirts, money from Sarah for 6 t-shirts, and money from Kelly for 10 t-shirts. David collected a total of \$225. How much did each t-shirt cost?

x = cost of t-shirt

$$14x + 6x + 10x = 225$$

$$\frac{30x}{30} = \frac{225}{30}$$

$$x = 7.5$$

One t-shirt was \$7.50

2.) The base of a triangle is (x + 7) and the height of the triangle is 6. If the area is 327 find the value for x.



$$A = \frac{1}{2}bh \text{ or } \frac{b \cdot h}{2}$$

$$327 = \frac{1}{2}(x+7)6$$

$$327 = \frac{1}{2} \cdot 6(x+7)$$

$$327 = 3(x+7)$$

$$327 = 3x + 21$$

$$\begin{array}{r} 327 \\ -21 \\ \hline \end{array} = \begin{array}{r} 3x \\ -21 \\ \hline \end{array}$$

$$\frac{306}{3} = \frac{3x}{3} \quad x = 102$$

x = the value

The value of x is 102.

3.) Green's Gym charges a yearly fee of \$50 plus \$30 per session for a personal trainer. A new fitness center charges a yearly fee of \$250 plus \$10 for each session with a trainer. For how many sessions is the cost of the two plans the same?

x = # sessions

$$\begin{array}{r} \text{Green's} \\ 50 + 30x \\ -10x \\ \hline \end{array} = \begin{array}{r} \text{new fitness} \\ 250 + 10x \\ -10x \\ \hline \end{array}$$

$$\begin{array}{r} 50 + 20x = 250 \\ -50 \quad -50 \\ \hline \end{array}$$

$$\begin{array}{r} 20x = 200 \\ 20 \quad 20 \\ \hline \end{array}$$

$$x = 10$$

10 sessions would be when the plans are the same

BONUS

In what situation would Green's Gym be less expensive?

less than 10

USE VALUES

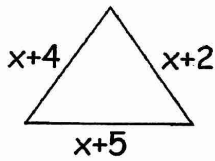
$$50 + 30(2) = 250 + 10(2)$$

In what situation would the new fitness center be less expensive?

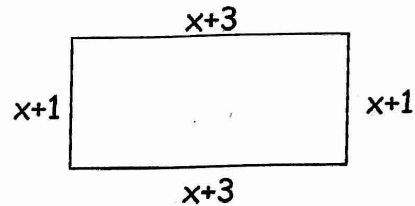
more than 10

$$50 + 30(26) = 250 + 10(26)$$

4.) Write an equation to find the value of  $x$  so that each pair of polygons has the SAME PERIMETER.



$x = \text{the value}$



$$x + 4 + x + 2 + x + 5 = x + 1 + x + 3 + x + 3 + x + 1$$

$$3x + 11 = 4x + 8$$

$$\begin{array}{r} 3x + 11 \\ -3x \end{array} = \begin{array}{r} 4x + 8 \\ -3x \end{array}$$

$$\begin{array}{r} 11 = x + 8 \\ -8 \end{array} \quad \begin{array}{r} -8 \end{array}$$

$$3 = x$$

The value of  $x$  is 3.

5.) You and your friend go shopping. You buy a Nike sweatshirt that costs \$79.95 and 2 pairs of Elite socks. Your friend buys Nike shorts that cost \$36.96 and 5 pairs of socks. If you each spend the same amount of money, how much does a pair of socks cost?

$x = \text{Cost of socks}$  You = Your friend

$$79.95 + 2x = 36.96 + 5x$$

$$\begin{array}{r} 79.95 + 2x \\ -2x \end{array} = \begin{array}{r} 36.96 + 5x \\ -2x \end{array}$$

$$\begin{array}{r} 79.95 = 36.96 + 3x \\ -36.96 \quad -36.96 \end{array}$$

$$\frac{42.99}{3} = \frac{3x}{3}$$

$$x = 14.33$$

Each pair of socks cost \$14.33

6.) You and your friend go to Candy Candy Candy. You buy three pounds of candy for \$9.27 and one pack of gum. Your friend buys a bag of chips for \$3.96 and four packs of the same gum. You each end up spending the exact same amount of money. How much does each pack of gum cost?

$x = \text{Cost of pack of gum}$

You = Your friend

$$9.27 + x = 3.96 + 4x$$

$$\begin{array}{r} 9.27 + x \\ -x \end{array} = \begin{array}{r} 3.96 + 4x \\ -x \end{array}$$

$$\begin{array}{r} 9.27 = 3.96 + 3x \\ -3.96 \quad -3.96 \end{array}$$

$$\frac{5.31}{3} = \frac{3x}{3}$$

$$x = 1.77$$

A pack of gum costs \$1.77