

1-11-18

Aim: SWBAT translate and solve word problems involving equations.

HW: Finish Packet page 6  
Quiz Next Week

Do Now: Top of Packet Page 5

### Homework - Translating Equations & Solving Two Step Equations

Write an algebraic expression or equation to represent each of the following. Remember to read the words carefully to decide if it is an expression or an equation.

- |   |                                     |
|---|-------------------------------------|
| 1) The <u>product</u> of seven and <u>y</u> is sixteen.                 | $7y = 16$                           |
| 2) Four <u>times</u> a number <u>increased</u> by eight                 | let $n = \text{the \#}$<br>$4n + 8$ |
| 3) Sixteen <u>less than</u> a number, <u>x</u> is 3 <u>more than</u> y. | $x - 16 = y + 3$                    |
| 4) Ten <u>decreased by</u> x is fifteen <u>decreased by</u> n.          | $10 - x = 15 - n$                   |
| 5) Fifty is twelve <u>subtracted from</u> x.                            | $50 = x - 12$                       |
| * 6) <u>Twice the sum</u> of x and y is three <u>times</u> z.           | $2(x + y) = 3z$                     |
| 7) Sixteen is the <u>product</u> of eight and y.                        | $16 = 8y$                           |
| 8) <u>Twice the difference</u> of x and three is nine.                  | $2(x - 3) = 9$                      |
| 9) The <u>quotient</u> of eleven and v is seven <u>minus</u> x.         | $\frac{11}{v} = 7 - x$              |
| 10) Five <u>times</u> the <u>difference</u> of nine and x               | $5(9 - x)$                          |

Define a variable, then write an equation using your variable to represent the situation.

- 11) Three times a number decreased by five is fifty.

Let  $n = \text{the \#}$

Equation:  $3n - 5 = 50$

- 12) Mark spent \$15 at the state fair, the admission fee is \$5 and the rides cost \$2 each.  
Write an equation that could be used to find the number of rides Mark went on.

Let  $x$  = # of rides

Equation:  $15 = 5 + 2x$

~~$$(15 - 5) \div 2 = x$$~~

- 13) Lou has 36 rocks in his collection. He separated them into equal piles of 12 rocks each.  
Write an equation that could be used to find out how many piles Lou has.

Let  $x$  = # of rock piles

Equation:  $36 = 12x$

Now solve your equation to find out how many piles of rocks Lou made.

~~$$\frac{36}{12} = x$$~~

$$\frac{36}{12} = \frac{12x}{12}$$

$$3 = x$$

Lou made  
3 rock piles.

**AIM:** SWBAT define a variable, write an equation and solve 2-Step word problems.

**Do Now:** Define the variable and write an equation for the situation. DO NOT SOLVE!

- 1) The sum of 8 and 3 times a number is 128. Find the number.

let  $n = \text{the \#}$   $(8 + 3n) = 128$

To solve a word problem algebraically:

- Define the variable with a let statement.
- Use the variable you defined to write an equation that represents the problem.
- Solve the equation.
- In your head, make sure your answer makes sense in the problem!
- Answer the word problem with a complete sentence.

Define a variable, write an equation and solve each problem.

- 1) Five more than twice a number is 25. Find the number.

let  $n = \text{the \#}$   $2n + 5 = 25$   
 $\quad \quad \quad - 5$   
 $\quad \quad \quad \hline$   
 $\quad \quad \quad 2n = 20$   
 $\quad \quad \quad \div 2$   
 $\quad \quad \quad \hline$   
 $\quad \quad \quad n = 10$

The number is 10.

- 2) Angelica joins a local gym called *Fitness solutions*. If she sets aside \$1000 in her annual budget for gym costs, use the ad at the right to determine how many hours she can spend with a personal trainer.

Fitness Solutions	
Annual Membership:	\$720
Personal Trainers Available	(\$35/h)

let  $x = \text{\# of hours}$   $720 + 35x = 1000$   
 $\quad \quad \quad - 720$   
 $\quad \quad \quad \hline$   
 $\quad \quad \quad 35x = 280$   
 $\quad \quad \quad \div 35$   
 $\quad \quad \quad \hline$   
 $\quad \quad \quad x = 8$

Angelica can afford 8 hours of personal training.

- 3) A telephone company advertises long distance service for 7¢ per minute plus a monthly fee of \$3.95. If your bill one month was \$12.63, find the number of minutes you used making long distance calls.

\$0.07

**Homework "2-Step Equation Word Problems"**

Remember you define a variable by identifying what it is you are looking for in the problem.

For Example: Find the number. Let  $x$  = the number

How much does one shirt cost? Let  $x$  = Cost of one shirt

**Define a variable, write an equation and solve each word problem.**

**Your final answer must be a complete sentence.**

1) Four times a number plus 75 is 23.  
Find the number.

2) Three times a number plus -8 is -29.  
Find the number.

3) Six less than twice a number is -14.  
Find the number.

4) Five less than three times a number is 25.  
Find the number.