## **<u>1.4: Write Equations and Inequalities</u>**

**Goals:** \*Translate verbal sentences into equations or inequalities \*Decide if a given value is a solution to an equation or inequality

**Equation** - a mathematical sentence with an \_\_\_\_\_\_.

<u>Inequality</u> - a mathematical sentence with an \_\_\_\_\_\_.

< \_\_\_\_\_ than

> \_\_\_\_\_ than

 $\leq$  \_\_\_\_\_ than or \_\_\_\_\_ to

≥ \_\_\_\_\_ than or \_\_\_\_\_ to

## \*\*IS\*\*

The word \_\_\_\_\_\_ MUST appear in order to have an \_\_\_\_\_\_ or \_\_\_\_\_. "is", "is the same as", "is equal to" means to put an \_\_\_\_\_\_.

"is less than (or equal to)", "is greater than (or equal to)" means to put an \_\_\_\_\_.

Translate the following verbal phrases into equations or inequalities. Be sure to underline key words or phrases.

**Ex:** twice the sum of a number *x* and 6 is greater than 5

**Ex:** three times the quotient of a number *y* and 4 is less than or equal to 3.

**Ex:** The product of *x* and 5, minus 4, is greater than 6.

**Ex:** The sum of *b* and 11, divided by 14 is 12.

**\*\*Ex:** 5 less than the product of 8 and x

Ex: The product of 6 and a number is at least 24

**Ex:** The quotient of a number *p* and 12 is at least 30

**Ex:** The quotient of a number and 2 is at most 16

## Write an inequality to represent the situation:

Ex: your math grade *g*, must be at least an 80 this year

**Ex:** The temperature can be at most 105° or you will get sick.

Solution – the	of the variable that makes the equation	(It	when you
it in	n)		
Check whether 3 is a s	solution to the equation or inequality. Yes or No.		
<b>Ex:</b> $8 - 2x = 2$	<b>Ex:</b> $4x - 1$	5 = 6	
<b>Ev.</b> $2\pi + 5 > 12$	Ex. 5 - 2	m < 20	
<b>EX.</b> $2\zeta + 3 > 12$	<b>EX.</b> $J + J$	$m \leq 20$	

Check whether 5 is a solution to the equation or inequality. Yes or No.

<b>Ex:</b> $24 - 3d = 9$	Ex:	3x + 4	= 1	8
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<b>Ex:</b> $2w - 7 < 3$ <b>Ex:</b> $4 + 3p > 19$
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Check whether the given number is a solution: (the number given comes after the semi-colon)

**Ex:** 9 - x = 4; 5 **Ex:** b + 5 < 15; 7

**Ex:**  $2n + 3 \ge 21; 9$ 

**Ex:** The last time you and 3 friends went to a mountain bike park, you had a coupon for \$10 off the total purchase and paid \$17 for 4 tickets.

- a) Identify a variable to represent what you don't know.
- b) Write an equation to represent the situation.
- c) Can you find out what the cost would have been if the group did not have a coupon?
- d) Can you find the cost of one regular price ticket?

Ex: A basketball player scored 351 points last year. The player plans on playing in 18 games this year.

- a) Choose a variable to represent what you don't know.
- b) Write an inequality to represent the situation.
- c) Will an average of 20 points per game be enough to beat least year's total?

**Ex:** Tyler would like to make no less than \$610 selling coffee mugs online. He plans to sell mugs for \$22 each. Write an inequality to represent the situation, then decide if he sells 28 mugs if he will reach his goal.