Name: Key

Test Date: _____

Expressions and Equations- Inequalities Summative REVIEW

Domain: Expressions and Equations

- I can understand solving an equation or inequality as a process of answering a question.
- I can write an inequality of the form x > c or x < c to represent a constraint or condition in a real world or mathematical problem.

Directions: Answer each of the following questions below. Be sure to show all work for each question!

1.) Circle all answers that make the inequality true: $48 \le 5m + 8$

Substitute in the value of m:

a.) $m = 7$ $48 \le 43$

b.) $m = 8$ $48 \le 48$

c.) $m = 4.5$ $48 \le 30.5$

d.) $m = 10$ $48 \le 58$

can solve for possible values of m

$48 \le 5m + 8$
$-8 \quad -8$
$\frac{40}{5} \le \frac{5m}{5}$
$8 \le m$

2.) Check all of the values of x that make each equation or inequality true.

Substitute and check!

	x = 1	x = 2	x = 3
2x + 5 = 9	7=9	9=9 ✓	11=9
2x + 5 < 9	7<9 ✓	9<9	11<9
2x + 5 ≤ 9	7≤9 ✓	9≤9 ✓	11≤9

3.) Which inequality is NOT true when x = 6? Substitute the value of x in the inequality and see if it works!

a.) $3x \ge 18$
$3 \cdot 6 \ge 18$ True
$18 \ge 18$

b.) $2x < 12$
$2 \cdot 6 < 12$ False! They are equal
$12 < 12$

c.) $2 + x < 10$
$2 + 6 < 10$ True
$8 < 10$

d.) $x - 2 \le 12$
$6 - 2 \le 12$ True
$4 \le 12$

4.) In order to win a weight lifting contest, Rhonda must lift more than 290 pounds. If *x* represents the amount of weight Rhonda lifted, choose the inequality that represents this situation.

a. $x \ge 290$

b. $x > 290$

c. $x < 290$

d. $x \le 290$

$x > 290$

Rhonda must lift more than 290. If she lifts 290, she won't win ☹

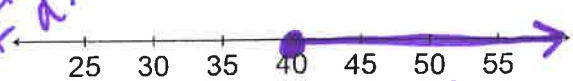
5.) Graph all the solutions for the following inequality. Remember to solve first to determine the possible solutions for the value of *d* to make the inequality true.

$8 \cdot \frac{d}{8} \ge 5 \cdot 8$

$d \ge 40$

Solution to inequality: $d \ge 40$

Showing $d \div 8$, so we must multiply both sides by 8 to find possible values of d.

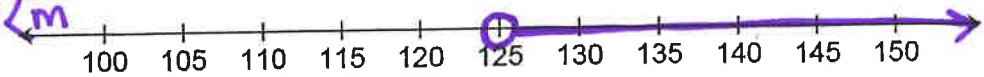


Shaded circle b/c 40 is part of the solution set

6.) Graph all the solutions for the following inequality. Remember to solve first to determine the possible solutions for the value of *m* to make the inequality true.

$184 < m + 59$
$-59 \quad -59$
$125 < m$

Solution to inequality: $125 < m$



7.) Solve and state all of the values for when the following equations/inequalities will be true and when they will be false.

a.) $9y = 108$

$\frac{9y}{9} = \frac{108}{9}$ $\quad y = 12$

*This is an equation (equal sign) so there is only one solution for y.

True only when $y = 12$

False for any other value other than 12.

b.) $c - 43 < 51$

$c - 43 < 51$
$+43 \quad +43$
$c < 94$

True $c < 94$ when c is any number less than

False $c > 94$ when c is greater than or equal to 94

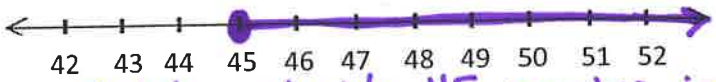
can stop at 45!

8.) All seventh graders must do at least 45 crunches in one minute.

a. Write an inequality to represent this situation. Let ***c*** represent the number of crunches.

$45 < c$ OR $c > 45$

b. Graph the inequality on the number line below.



shaded circle b/c 45 crunches is included and they can do more!

9.) Gia is buying new tennis shoes. Her mom says she should spend at least $60, but less than $120 on a pair of shoes. Let *m* represent the amount of money she spent.

spend 60 or more

can't spend 120

This situation is represented by the inequality **60 ≤ *m* < 120**

Graph the inequality on the number line below.

shaded circle b/c she has to spend 60 or more

not shaded b/c she can't spend 120... must be less.