MGSE Unit 4 Study Guide: One Step Equations and Inequalities

Name: __*Key*__ Date:_____ Period:_____

MGSE6.EE.5

1. The total amount of money the math club needs to attend a math tournament is $400. The inequality shows the amount of money, *m*, the members of the math club need to raise in order to be able to attend the math tournament.

$$m + 100 \geq 400$$
$$-100 \quad -100$$
$$m \geq 300$$

Part A

What values of *m* make the inequality true? Explain how you know your values are correct.

Any value of 300 or above will give a total of $400 or more raised.

Part B

The members of the math club want to raise 20% more than the total amount needed to attend the math tournament in order to purchase new math games for the club. What is the new total amount that the members need? Show your work or explain your answer.

$$\frac{x}{400} = \frac{20}{100}$$

$$\frac{100x}{100} = \frac{8000}{100}$$

$$x = 80$$

$80 is 20% of $400, so the new total is $400 + $80 = $480.

2. Which could not be the missing number in the number sentence $8 \cdot \_\_ < 56$

   a. 4   b. 6   c. 5   **(d. 7)**

3. Which of the following is NOT a solution to the inequality $15 \geq x$?

   a. 13   **(b. 16)**   c. 15   d. 0

MGSE6.EE.6

4. The number of diamonds, d, on a necklace is 8 less than the number of gold charms, c. Write an equation that gives the number of diamonds on a necklace? $c - 8 = d$

   If there are 25 gold charms on a necklace, how many diamonds are on the necklace?

   $(25) - 8 = \boxed{17}$

5. Which problem situation matches the equation $10x = 180$?
   a. Jamie sold 180 newspaper subscriptions each month for 10 months. What is x, the total number of newspaper subscriptions that Jamie sold in 1 year?
   b. Brenna cycled a total of 180 miles this month. She cycled 10 miles each day. What is x, the number of days Brenna cycled this month?
   c. Mary charges a flat fee of $100 plus $10.00 per hour for labor to paint houses. What is x, the number hours Mary worked if she charged $180.00 for labor?
   d. Sara bought 10 ride tickets and x game tickets. How many game tickets did she buy if she bought 180 tickets in all?

6. Together a puppy and kitten weigh a total of 22.5 pounds. The puppy weighs 7.8 pounds. Write an equation to represent the situation, and solve for the weight of the kitten.

   Equation: __$x + 7.8 = 22.5$__

   Solution: __14.7 lbs__

   $$22.5 = x + 7.8$$
   $$-7.8 \qquad -7.8$$
   $$14.7 = x$$

MGSE6.EE.7

7. What is the value of j in the following equation?	8. What is the value of x in the following equation?	9. What is the value of k in the following equation?
$j - 126 = 195$ $+126 \quad +126$ $j = 321$	$\dfrac{18x}{18} = \dfrac{144}{18}$ $x = 8$	$\dfrac{1}{4}k = 5$ $5 \cdot \dfrac{4}{1} = \dfrac{20}{1} = k = 20$

MGSE6.EE.8

10. Mrs. Perry hires a landscaper that charges $20 per hour. The landscaper says that the total charge for the work Mrs. Perry wants done will be at least $240.

Write and inequality to show h, the number of hours it may take for the landscaper to do the work form Mrs. Perry. Solve the inequality and show your work below.

$$\dfrac{20h}{20} \geq \dfrac{240}{20}$$

$$h \geq 12$$

11. Angelina wants to buy a pair of jeans and a sweater that costs $18. She does not want to spend more than $50 for the jeans and sweater. Which inequality best represents j, the amount that Angelina can spend on the jeans.

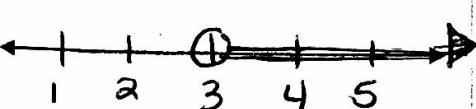   a. $j \leq 32$ b. $j \geq 32$ (c. $j < 32$)   d. $j > 32$

$$j + 18 < 50$$
$$ -18 \quad -18$$
$$j < 32$$

12. Nolan read for 10 hours last week. McKinley read more hours than Nolan. Write an inequality showing the number of hours, that McKinley read.
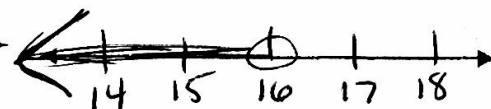
$$m > 10$$

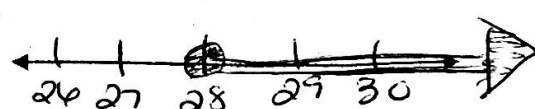Solve and graph the solution to each inequality. Show all work.

13. $\dfrac{8n}{8} > \dfrac{24}{8}$

$$n > 3$$

14. $y - 6 < 10$
$$ +6 \quad +6$$
$$y < 16$$

15. $\dfrac{x}{4} \geq 7 (4)$ (4)

$$x \geq 28$$

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What equation is shown by the graph below?

Equation: $y = 5x$

Energy (E): 2000, 1500, 1000, 500

(100,500) (200,1000)

Weight (grams): 100 200 300 400

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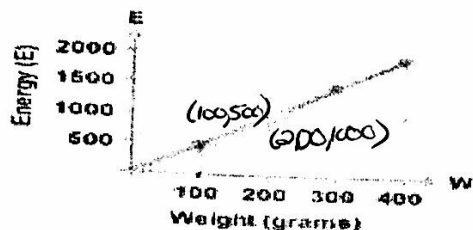
17. Which rule or expression shows how to find the y values in the table?

X	Y
1	8
4	32
7	56
10	80

$y = 8x$

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18. The table below shows the total number of cans donated to food for sharing each day in December.

Food For Sharing Donations

Number of Days	Amount of Cans donated
1	6
3	18
7	42
9	54

a) If *n* represents the number of days, what is the rule for this table?
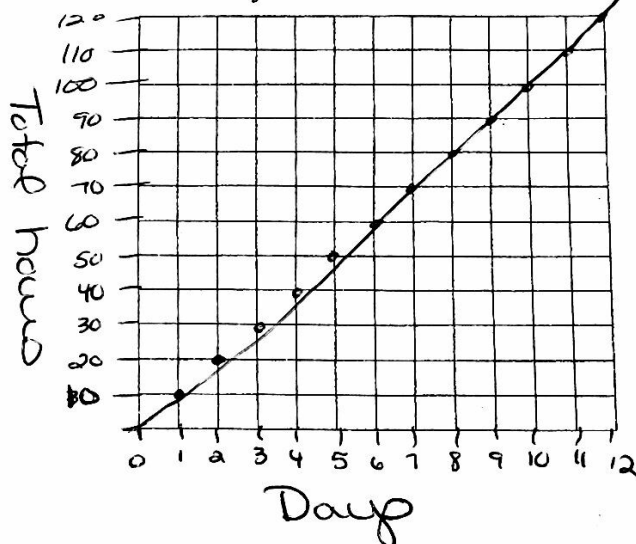
$y = 6n$

b) What is the *independent* variable in the situation? Number of days

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MGSE6.RP.3a

19. Antonio's Pizza Co. is open 10 hours per day. Fill in the table of values and plot the values on a graph to show how many total hours, y, they are open after x days. Remember to label the x- and y-axis.

x (days)	0	3	6	8	12
y (total hours)	0	30	60	80	120

Total hours

Days

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20. A switch on a garden sprinkler controls the distance the water sprays.

- When the switch is set at the number 8, the water reaches a distance of 2 feet.

- When the switch is set at the number 12, the water reaches a distance of 3 feet.

- This rate of change remains the same as the switch is set to different numbers.

At what number should the switch be set to in order to make the water reach a distance of 9 feet?

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Switch	Distance
8	2
12	3
16	4
20	5
24	6
28	7
32	8
36	9