Math 6 - Unit 4: Equations & Inequalities
Study Guide – End of Unit Test

Name: KEY

Class Period: 1 2 3 4 Date: _____

MULTIPLE CHOICE

Identify the choice that best completes the statement or answers the question.

1. List out the characteristics of a direct variation graph. (Where does it start, what does it look like?)

STARTS AT THE ORIGEN (0,0)

STRAIGHT LINE

Solve the equations below. Show all of your work, including the check.

2. $\frac{1}{5}x = 42$ ÷ $\frac{1}{5}$ ÷ $\frac{1}{5}$ X=210 $\frac{1}{5} \cdot 210 = 42$ 42 = 42✓

42 ÷ $\frac{1}{5}$ $\frac{42}{1} \cdot \frac{5}{1}$ $\frac{42}{1} \cdot \frac{5}{1}$ 210 5|210

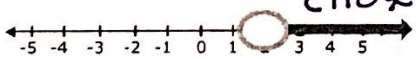
3. $67 + c = 183$ C+67 = 183 -67 -67 C = 116 67+116=183 183=183✓

4. $j - 5.6 = 4.6$ +5.6 5.6 J = 10.2 10.2-5.6=4.6 4.6=4.6✓ 10.2 - 5.6 4.6

4. Jennifer spent $8.99 on a bag of Jolly Ranchers that cost x dollars a piece. If there were 110 Jolly Ranchers in the bag, write an equation that could be solved using inverse operations to find out how much each Jolly Rancher would cost. (You do not need to solve the equation.

8.99 ÷ x = 110 110x = 8.99

5. Write a situation that could describe the following inequality graph.



x > 2

There are more than 2 students wearing blue.

6. Write an inequality to represent the fact that there are **at least** 13 questions on your test. $x \geq 13$

7. Write an inequality to represent that there are **more than** 125 cars in the parking lot. $x > 125$

8. Gabriel wants to solve the equation, $\frac{3}{4}m = 25$.
Which step should he **do to isolate *m*** on one side of the equation? divide by $\frac{3}{4}$

9. Judy spent **$5.67** on oranges that cost **$0.63 each**. If x = the number of oranges, write an equation that would determine how many oranges Judy purchased? .63x = 5.67 5.67 ÷ x = .63

10. Write a direct variation equation to represent the data in the table.

x	0	1 (×5)	2 (×5)	5 (×5)
y	0	5	10	25

K = 5 y = kx y = 5x

11. Write one possible solution and one non-solution to the inequality, x > 4. SOL: 5, 100 NON-SOL: 4, 0

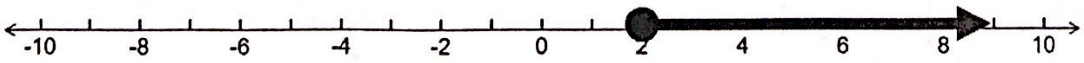
12. Explain how to solve an equation. use inverse operations on both sides to isolate the variable.

13. Complete the table to satisfy the direct variation equation, y=12x

x	0	1	2	4	5
y	0	12	24	48	60

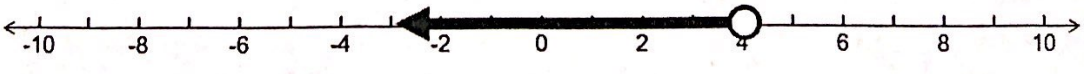
y = 12(1) y = 12(2) $\frac{48}{12} = \frac{12x}{12}$ y = 12(6) 4 = x

14. What inequality is graphed on the number line?



$x \geq 2$

15. What inequality is graphed on the number line?



$x < 4$

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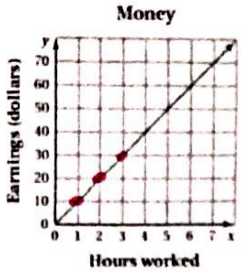
16. What direct variation equation is graphed on the coordinate plane below?



x	y
1	10
2	20
3	30

K=10

y=10x

17. Julia paid **$140** for **7 gift cards**. Each gift card was the same price. Write an equation that that represents the situation and find the **price of each** gift card? $\frac{7x}{7} = \frac{140}{7}$ x=20

$20 per gift card

18. A music teacher bought 17 recorders of equal price. She spent a total of $51. The equation $17r = 51$ can be used to find r, the price of each recorder in dollars. What was the price of each recorder? $\frac{17r}{17} = \frac{51}{17}$ r = 3 $51 per recorder. 17(3)=51 51=51✓

19. Mrs. Katz bought chick-fil-a biscuits for her homeroom and spent a total of $160. If each biscuit cost $5, write an equation that you could use inverse operations to solve and solve it to find out how many biscuits Mrs. Katz bought. $\frac{5x}{5} = \frac{160}{5}$ x=32 5(32)=160 160=160✓

MRS. KATZ BOUGHT 32 BISCUITS.

20. Which **solution** makes the **equation true**? $x - 6.5 = 19$

+6.5 +6.5

x = 25.5

25.5 - 6.5 = 19
19 = 19✓

For **questions 19-21**, *determine whether the given value is a solution of the equation by selecting* ***true*** *or* ***false***.

21. $25 = \frac{k}{3}$ for $k = 3$

a. TRUE b. FALSE

$25 = \frac{3}{3}$ 25≠1

22. $0.7y = 49$ for $y = 70$

a. TRUE b. FALSE

0.7y=49
.7(70)=49
49=49

23. Silly Sally solved the equation for x and shows her solution below. **What should Silly Sally do to correct her mistake?**

36 + x = 54

36 + x = 54
-36 +36
x = 90

She should have subtracted 36 from BOTH sides.

24. **Opposite** operations that "undo" each other are called inverse operations.

25. Which step should be taken to **isolate the variable** in the following equation?

$213n = 1418$

divide by 213 on both sides.

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