Math 6 - Unit 4: Equations & Inequalities Name: KEY

Study Guide - Mid-Unit Test

Class Period: 1 2 3 4 Date: _____

MULTIPLE CHOICE

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

1. Which step should be taken to **isolate the variable** in the following equation? $\frac{d}{8} = 126$ MULTIPLY BY 8
2. What is the **value of c** in the following equation? $67 + c = 183$ $67+C=183$, $-67\ -67$, $C=116$
3. What is the **value of *j*** in the following equation? $j - 5.6 = 4.6$ $j-5.6=4.6$, $+5.6\ +5.6$, $j=10.2$
4. What is the **value of *n*** in the following equation? $11n = 28.6$ $\frac{11n}{11}=\frac{28.6}{11}$, $n=2.6$
5. What is the **value of *k*** in the following equation? $\frac{k}{21} = 7$ $\frac{K}{21}=7\cdot21$, $K=147$
6. What is the **value of *a*** in the following equation? $\frac{a}{5} = 123$ $5\cdot\frac{a}{5}=123\cdot5$, $a=615$
7. Gabriel wants to solve the equation $\frac{5}{8}m = 25$.
   Which step should he **do to isolate *m*** on one side of the equation? DIVIDE BY $\frac{5}{8}$
8. 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? $0.63x = 5.67$
9. Anna bought a **16.7-pound** turkey for Thanksgiving this year. The equation $p - 16.7 = 2.5$ gives the weight *p*, in pounds, of the turkey she bought last Thanksgiving. ~~Which of the following is a solution to the equation?~~ 19.2 pounds $p-16.7=2.5$, $+16.7\ +16.7$, 19.2
10. Jenna's basketball team scored **62 points in its last game.** Jenna **scored 15 of the points**. Write an equation that could be used to determine the number of points *p* scored by Jenna's teammates? $x + 15 = 62$
11. Which is the **solution** to $7f = 833$? $\frac{7f}{7}=\frac{833}{7}$; $f=119$
12. Which **value** makes **the equation below true**? $\frac{d}{9} = 8.1$ $\frac{d}{9}=8.1\cdot9$, $d=72.9$
13. 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? $7p=140$, $p=\$20$
14. 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? $\frac{17p}{17}=\frac{51}{17}$, $p=\$3$
15. Last week Randy worked **62 hours** in **7 days.** Write an equation that Randy could use to find the average number of hours he worked **each day**? $\frac{62}{7}=x$
16. **Estephanie and two friends** went to Taco Mac for lunch. They decided to **split their bill evenly.** If they each paid $12, write an equation that would represent the **cost of their bill** and find out how much they spent in total. $3\cdot\frac{x}{3}=12\cdot3$, $x=\$36$
17. Jason has a collection of 18 model planes. His father added to the collection, and the number of planes Jason now has can be modeled by the equation $18 + p = 42$, where *p* represents the number of new planes. How many new planes did Jason's father give him?
18. Which **solution** makes the **equation true**? $x - 6.5 = 19$ $+6.5\ \ 6.5$, $x=25.5$ $18+P=42$, $-18\ \ -18$, $P=24$ planes

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

19. $33 = x - 25$ for $x = 52$ — $33 = 52 - 25$, $33 \neq 27$

a. TRUE **b. FALSE**

20. $25 = \frac{k}{3}$ for $k = 3$ — $25 = \frac{K}{3}$ $25 = \frac{3}{3}$ $25 \neq 1$

a. TRUE **b. FALSE**

21. $0.7y = 49$ for $y = 70$ — $0.7 \cdot 70 = 49$, $49 = 49$ ✓

a. TRUE b. FALSE

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

$36 + x = 54$

$36 + x = 54$
$-36 \quad +36$
$x = 90$

SHE SHOULD HAVE SUBTRACTED 36 FROM BOTH SIDES.

23. **Opposite** operations that "undo" each other are called INVERSE OPERATIONS.

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

$213n = 1418$ DIVIDE BY 213 ON BOTH SIDES.

25. Write a situation that **can** be represented by the equation $x + 5 = 17$?

SAMPLE ANSWER: I HAD SOME PENCILS. LAWSON GAVE ME 5 MORE PENCILS AND NOW I HAVA A TOTAL OF 17 PENCILS. HOW MANY PENCILS DID I START WITH?

26. Solve for x: $\frac{\frac{1}{4}x}{\frac{1}{4}} = \frac{16}{\frac{1}{4}}$ $x = 16 \div \frac{1}{4} = \frac{16}{1} \cdot \frac{4}{1}$ $x = 64$

27. Simplify the expression: $6(3x + 4) - 2x + 10y + 5$

$18x + 24 - 2x + 10y + 5$

$18x - 2x + 10y + 24 + 5$

$16x + 10y + 29$