Algebra 1 Name: _____
OPFI

Unit 3 Study Guide

Learning Target 1: Use algebraic properties (such as distributive property and combining like terms).

1. Distribute each of the following expressions

a. $2(x + 3)$ b. $3(x – 5)$ c. $-4(x + 7)$ d. $-6(x – 2)$

2. Distribute and solve each of the equations below:

a. $4(x – 7) = 12$ b. $5(x + 3) = 35$ c. $8(x – 3) = 64$ d. $7(x + 2) = 63$

3. Solve each of the equations:

a. $2(x + 4) – 5 = 25$ b. $3(x + 3) + 10 = 31$ c. $4(x – 3) + 1 = 21$

4. Solve each of the equations

a. $3x + 8 + 2x = 58$ b. $-4x + 10 + 10x = 52$ x. $5x – x + 8 = 52$

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Learning Target 2: Write an equation in terms of two variables and analyze the different meanings.

5. You want to buy your friends some gifts for the holidays. You buy Santa hats for $3 each and reindeer antler headbands for $2 each. Write a function that represents this scenario.

6. You are selling tickets to the holiday choir concert. Student tickets sell for $3 each and adult tickets sell for $6 each. Write a function that represents this scenario.

7. Ms. Russell is buying McDonalds cheeseburgers and fries for her favorite Math Class. She has $50 to spend. Cheeseburgers ***c*** cost $3 each and fries ***f*** cost $2 each. Write an equation that represents this scenario.

8. Tatiana received a $100 gift card from her Grandma for Christmas. She plans to spend it on earrings ***e*** that cost $15 each and charms ***c*** for her bracelet. Each charm costs $10 each. Write the equation that represents this scenario.

9. Jamil is making money by shoveling snow for the winter. He charges $10 for each sidewalk ***s*** and $20 for each driveway ***d***. He wants to make $500. Write the equation that represents this scenario.

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Learning Target 3: Compare a linear relationship represented in standard form and slope-intercept form.

10. Write each of the equations below in slope intercept form:

a. 8x + 2y = 16 b. 6x – 3y = 18 c. 4x + 12y = 48

11. Write each of the equations below in standard form:

a. y = 4x + 10 b. y = -3x + 16 c. $y = \frac{1}{2}x + 10$ d. $y = -\frac{1}{3}x + 7$

Learning Target 4: Look at a linear equation in any form, graph it, and identify the x- and y- intercepts.

12. Find the x and y intercept for each of the equations below:

a. y = 4x + 40 b. y = -5x + 25 c. y = 7x + 21 d. y = -4x + 18

13. Find the x and y intercepts for each of the equations below:

a. 2x + 8y = 12 b. 3x - 7y = 84 c. -4x + 10y = 20 d. 6x - 5y = 60

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Learning Target 5: Use literal equations to solve for an unknown quantity.

14. The equation $V = \frac{1}{3}BH$ gives the volume V of a pyramid. If the Base of a pyramid is 30 m and the Height is 10 m, what is the Volume of the Pyramid?

Isolate the formula $V = \frac{1}{3}BH$ for the base (B)

What is the Base of a Pyramid with a volume of 100m and a Height of 15m

15. The equation **I = PRT** gives the interest on a principal amount of money at a specific rate over time. Isolate the equation for **P**