

Name: \_\_\_\_\_

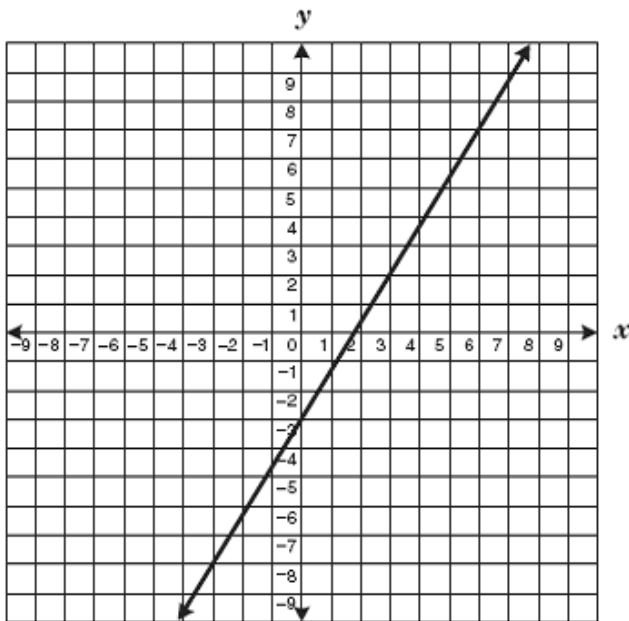
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### Algebra 1, Unit 4A, Activity: Writing and Graphing Systems of Equations

Student Expectations:

- A.3A Use symbols to represent unknowns and variables.
- A.8A Analyze situations and formulate systems of linear equations in two unknowns to solve problems.
- A.8B Solve systems of linear equations using concrete models, graphs, tables, and algebraic methods.
- A.8C Interpret and determine the reasonableness of solutions to systems of linear equations.

1. The graph of the equation  $y = \frac{5}{3}x - 3$  is shown below



A. (6A) Graph  $y = x + 1$  on the same coordinate grid.

B. (8B) Do the two lines intersect?

C. (8B, C) Write the solution to this system of equations as an ordered pair.

2. Given this system of linear equations:

$$4x + 2y = 2$$

$$y = -2x + 4$$

A. (6D) Write each equation in slope-intercept form.

B. (8B, C) Which of the following is the solution to the given system of linear equations?

a.  $(2, 0)$

b.  $(0, 2)$

c. Infinite solutions

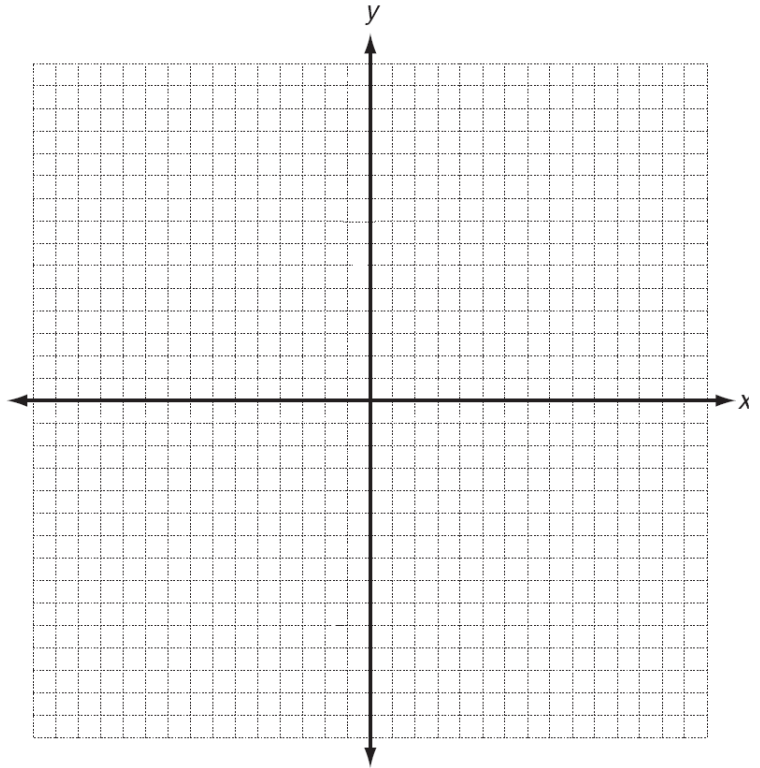
d. No solution

3. Given the equations for 2 lines:  $2x - 3y = -9$  and  $x + y = 8$ .

A. (6D) Write both equations in slope-intercept form.

B. (6A) Graph both equations on the coordinate plane to the right.

C. (8B) What is the solution to this system of equations?



4. A large cheese pizza at Pepe's Pizzeria costs \$6.80 plus \$0.90 for each topping. The cost of a large cheese pizza at Gino's Pizzeria costs \$7.30 plus \$0.65 for each topping.

A. (3A) Define the variables in this situation:

B. (8A) Write the equation for Pepe's Pizzeria:

C. (8A) Write the equation for Gino's Pizzeria:

5. The Frosty Ice-Cream shop sells only two types of ice cream, sundaes for \$2 and banana splits for \$3. On a hot summer day the shop sold 24 ice creams. That day, the shop made \$57 selling ice cream.

A. (3A) Define the variables in this situation:

B. (8A) Write a system of equations that represents this situation.

6. (8A) Jasmine purchases bags of white and long-grain rice for her restaurant. She gets 3 more than twice as many bags of white rice as long-grain. She has a total of 21 bags of rice. Which system of equations can be used to find  $w$ , the number of white rice bags and  $g$ , the number of long-grain bags?

a. 
$$\begin{aligned} 2g + 3 &= w \\ w + g &= 21 \end{aligned}$$

b. 
$$\begin{aligned} 2w - 3 &= g \\ w + g &= 21 \end{aligned}$$

c. 
$$\begin{aligned} 2g + 3 &= w \\ w - g &= 21 \end{aligned}$$

d. 
$$\begin{aligned} 2w + 3 &= g \\ w + g &= 21 \end{aligned}$$

7. (8A) The length of a rectangle is twice its width, while the perimeter of the rectangle is 36 units. Which system of equations can be used to find the length  $l$  and the width  $w$  of the rectangle?

a. 
$$\begin{aligned} 2l &= w \\ 2l + 2w &= 36 \end{aligned}$$

b. 
$$\begin{aligned} l &= 2w \\ 2l + 2w &= 36 \end{aligned}$$

c. 
$$\begin{aligned} 2l &= w \\ l + w &= 18 \end{aligned}$$

d. 
$$\begin{aligned} l &= 2w \\ l + w &= 18 \end{aligned}$$

8. (8A) Mr. Franks bought 8 tickets to a puppet show and spent \$30. He bought a combination of child tickets for \$3 each and adult tickets for \$5 each. Write a system of equations that will determine the number of adult tickets,  $a$ , and the number of child tickets,  $c$ , he bought.

9. (8C) A certain video rental store rents video games for \$4.99 and movie videos for \$2.99. One day the store rented a total of 35 video games and movie videos. If the total rental income for this day was \$144.65, not including tax, which of the following statements is a reasonable conclusion:

- a. There were more video games than movie videos rented on this day.
- b. There were more movie videos than video games rented on this day.
- c. The total rental income for movie videos on this day was \$99.80, not including tax.
- d. The total rental income for video games on this day was \$74.85, not including tax.

10. (8 A,B,C) Marcos has 15 coins in nickels and quarters. He has 3 more quarters than nickels. He wrote a system of equations to represent this situation, letting  $x$  represent the number of nickels and  $y$  represent the number of quarters. Then he used his graphing calculator to solve the system by graphing. What is the solution?

- a. (6, 9)
- b. (5, 10)
- c. (9, 6)
- d. (10, 5)

11. Use the grid to graph  $y \geq \frac{3}{4}x - 2$ .



Which coordinate point represents a solution to the inequality?

- a. (4, 0)
- b. (-3, -5)
- c. (7, 2)
- d. (-2, 3)