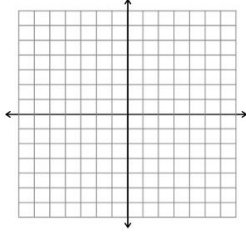


# Unit 3: Systems of Equations Review

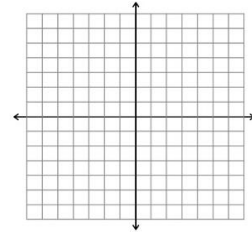
Name: \_\_\_\_\_

Solve the system by graphing:

1.  $y = 2x - 1$   
 $y = -\frac{1}{2}x + 3$



2.  $2x - y = 4$   
 $y = 2x + 3$



3. Solve using substitution:  $2x + 2y = 8$   
 $x = y$

4. Solve using substitution:  $x + 6y = -2$   
 $y = 2 - x$

5. What method would you use to solve the following?  $4x - 2y = 1$  and  $y = 2x - 7$

6. The sum of two numbers is 27 and the difference is 19. Find the 2 numbers.

7. Solve using elimination:  $4x + y = 14$   
 $3x + 2y = 8$

8. Choose any method to solve : Then find the sum of x and y:  $4x + y = -1$   
 $-5x - y = 0$

9. How many solutions does the following have:  $y = 3x - 2$  and  $2x + 5y = 7$ ?

10. A student bought 3 boxes of pencils and 2 boxes of pens for \$6.00. He then bought 2 boxes of pencils and 4 boxes of pens for \$8.00 find the cost of each box.

11. Ashley has 15 coins that are nickels and dimes. The total value of the coins is \$1.25. How many dimes does she have?

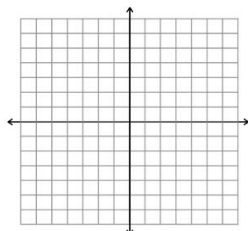
12. A bicycle rental shop at the beach has two seat and one seat bikes. The company has 42 vehicles that seat 84 people. Write a system of equations to represent this situation.

13. Jason has saved \$ 60 and plans to save \$20 a month, while Jacob has saved \$45 and plans to save \$40 a month when will their savings be the same.

14. Use elimination to solve:  $5x + 7y = 3$   
 $2x + 3y = 1$

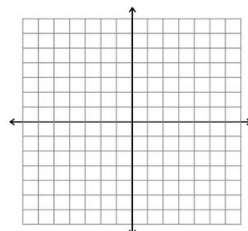
15. Solve the system of inequalities by graphing

$y > -5x - 6$   
 $y > -x - 1$

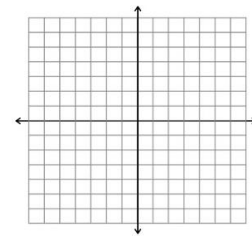


16. Solve by graphing  $x - y \geq 3$

$y < -2$



17. Is  $(0,1)$  a solution of the inequalities  $1 - x \geq 3y$  and  $3y - 1 > 2x$  ?



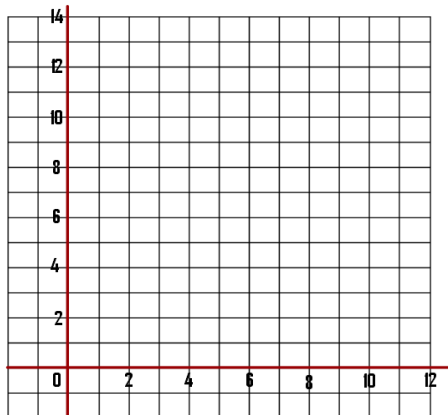
18. How much of a 40% saltwater solution do you need to mix with a 15% saltwater solution to make 50 gallons of a 25% saltwater solution?

19. Mark is making cherry pie and apple pie for a fundraiser. Mark is confident that he will be able to sell all the pies that he makes. There are *two constraints* that limit his production today:

**SUGAR:** Each cherry pie requires 2 cups of sugar. Each apple pie requires 2 cups of sugar. Mark only has 16 cups of sugar.

**Flour:** Each cherry pie requires 4 cups of flour. Each apple pie requires 2 cups of flour. Mark only has 24 cups of flour.

Write two inequalities. Then, find the intersection of these inequalities to show all combinations of pies that Mark can make with the two constraints given.



Let  $x =$  \_\_\_\_\_

$y =$  \_\_\_\_\_

Inequality #1: \_\_\_\_\_

X-intercept: \_\_\_\_\_ Y-intercept: \_\_\_\_\_

Inequality #2: \_\_\_\_\_

X-intercept: \_\_\_\_\_ Y-intercept: \_\_\_\_\_

Suppose each cherry pie makes a profit of \$5.50 and each apple pie makes a profit of \$4.25. How many cherry pies and apple pies should Mark make in order to maximize his profit?

**Objective Function:** \_\_\_\_\_

Vertex 1: \_\_\_\_\_ = \_\_\_\_\_ = \_\_\_\_\_

Vertex 2: \_\_\_\_\_ = \_\_\_\_\_ = \_\_\_\_\_

Vertex 3: \_\_\_\_\_ = \_\_\_\_\_ = \_\_\_\_\_

Vertex 4: \_\_\_\_\_ = \_\_\_\_\_ = \_\_\_\_\_

Solution: \_\_\_\_\_