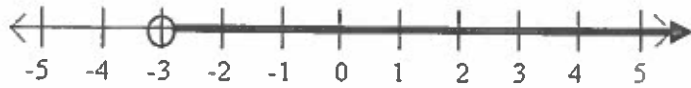


Algebra 1 - 3rd Quarter QMA Review

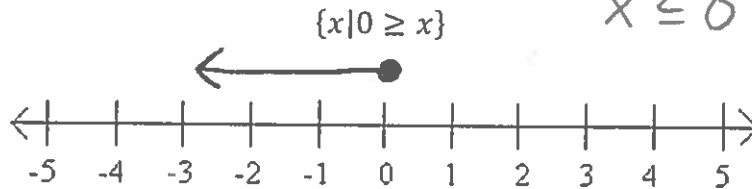
Directions: Follow the directions and solve all problems to the best of your ability.

1. Write an inequality to represent the graph shown.



$$x > -3$$

2. Graph the inequality shown below.



$$x \leq 0$$

Solve each of the inequalities.

3. $28 - k \geq 7(k - 4)$

$$\begin{array}{r} 28 - k \geq 7k - 28 \\ -7k \quad -7k \end{array}$$

$$\begin{array}{r} 28 - 8k \geq -28 \\ -28 \quad -28 \end{array}$$

$$\begin{array}{r} -8k \geq -56 \\ -8 \quad -8 \end{array}$$

$$k \leq 7$$

4. $-2(5 + 6n) < 6(8 - 2n)$

$$\begin{array}{r} -10 - 12n < 48 - 12n \\ +12n \quad +12n \end{array}$$

$$-10 < 48 \text{ true statement}$$

infinite solutions
or
 \mathbb{R}

5. $3(1 - 2x) > 3 - 6x$

$$\begin{array}{r} 3 - 6x > 3 - 6x \\ +6x \quad +6x \end{array}$$

$$3 > 3$$

false statement

no solution

6. Tell whether the ordered pair $(-6, -15)$ is a solution to $2x - y > 4$

$$2(-6) - (-15) > 4$$

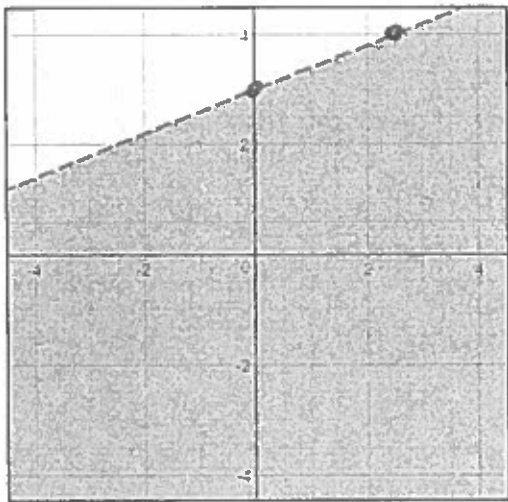
$$-12 + 15 > 4$$

$$3 > 4$$

no

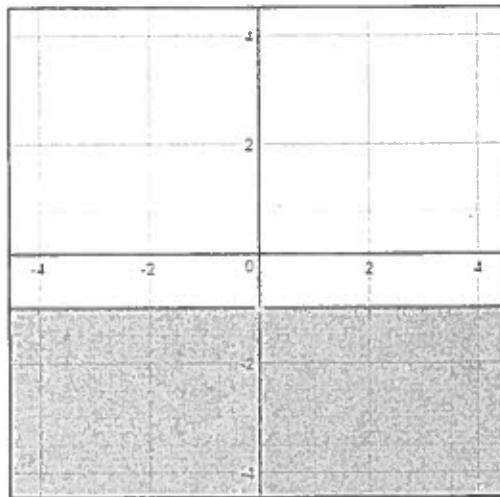
Write the inequality for each graph.

7. $y < \frac{2}{5}x + 3$



$b = (0, 3) \quad m = \frac{2}{5}$

8. $y \leq -1$



9. You and your friends go to a bagel shop for breakfast. Together, you have \$20 to spend. Each bagel costs \$0.65 and each glass of juices costs \$0.95. Let x represent the number of bagels you can buy. Let y represent the number of glasses of juice you can buy.

a) Write an inequality that describes the different numbers of bagels and glasses of juice that your group can afford.

$0.65x + 0.95y \leq 20$

b) If you want to buy 8 bagels, how many glasses of juice can you buy?

$x = 8$

$0.65(8) + 0.95y \leq 20$

$5.2 + 0.95y \leq 20$

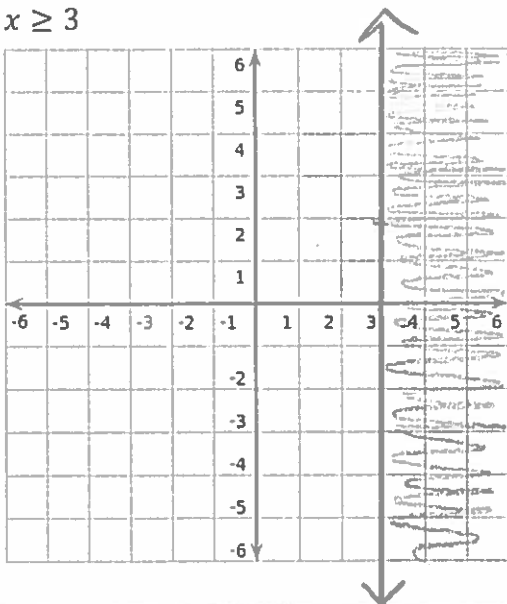
$\frac{0.95y \leq 14.8}{0.95} \quad \frac{14.8}{0.95}$

$y \leq 15.6$

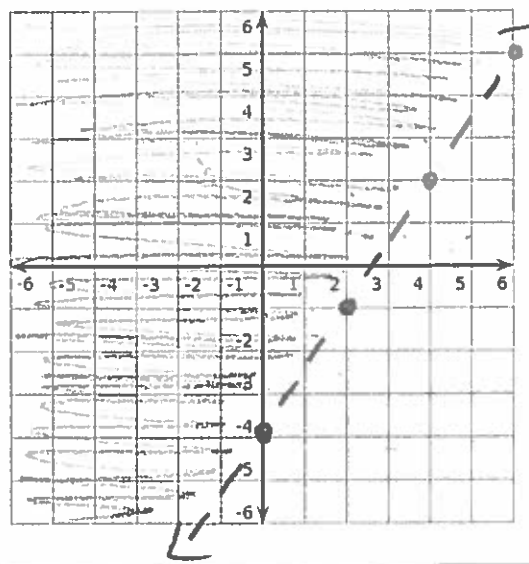
15 glasses of juice

Graph each inequality on the coordinate plane provided.

10. $x \geq 3$



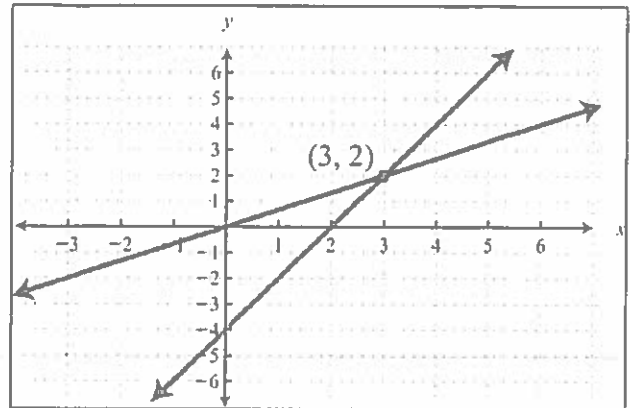
11. $-3x + 2y > -8$



$-3x + 2y > -8$
 $2y > 3x - 8$
 $y > \frac{3}{2}x - 4$

12. How many solutions does the system shown on the graph have?

one



13. What is the solution to the system shown on the graph?

(3, 2)

Find the solution to system by graphing.

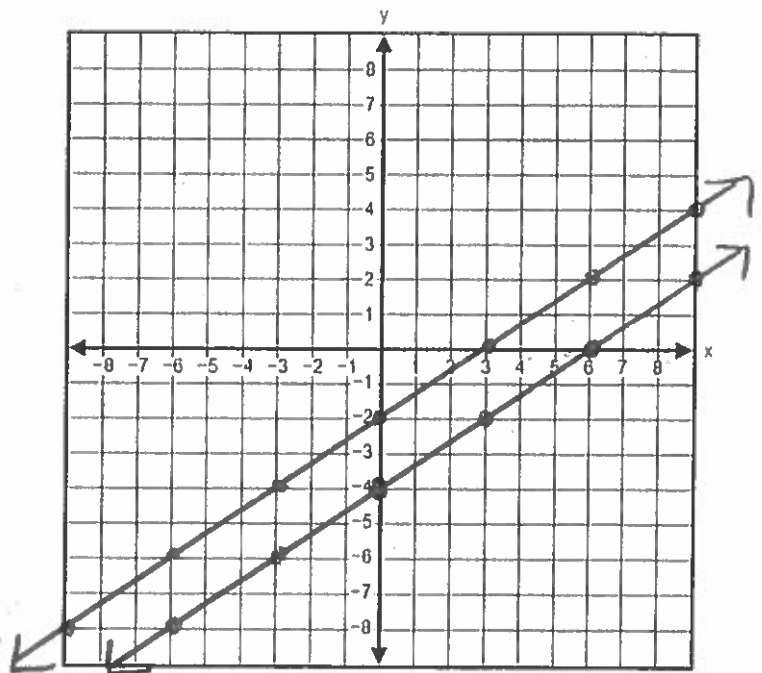
14. $y = \frac{2}{3}x - 4$

$6x - 9y = 18$ none

$6x - 9y = 18$

$$\frac{-9y}{-9} = \frac{-6x + 18}{-9}$$

$$y = \frac{2}{3}x - 2$$



Find the solution to each system using whichever method you prefer.

15. $x = 6 - 4y$
 $-3x - 12y = -18$

$$-3(6 - 4y) - 12y = -18$$

$$-18 + 12y - 12y = -18$$

$$-18 = -18$$

✓

infinite solutions

16. $\begin{matrix} 3x + 2y = 5 & \cdot 5 \\ 5x - 9y = -4 & \cdot -3 \end{matrix}$

$$15x + 10y = 25$$

$$-15x + 27y = 12$$

$$\frac{37y}{37} = \frac{37}{37}$$

$$y = 1$$

$$3x + 2(1) = 5$$

$$3x + 2 = 5$$

$$3x = 3$$

$$x = 1$$

(1, 1)

17. Select all the solutions to the system of inequalities below.

$$\begin{aligned} x &< -y + 2 \\ 3x + 2y &\geq 4 \end{aligned}$$

$$\begin{aligned} 3 < -(-2) + 2 & \quad 3(3) + 2(-2) \geq 4 \\ 3 < 4 \checkmark & \quad 9 - 4 \geq 4 \\ & \quad 5 \geq 4 \checkmark \end{aligned}$$

$$\begin{aligned} 2 < -(4) + 2 \\ 2 < 2 \\ \times \end{aligned}$$

$$\begin{aligned} 0 < -(4) + 2 \\ 0 < -2 \checkmark \end{aligned}$$

$$\begin{aligned} 3(0) + 2(4) &\geq 4 \\ 8 &\geq 4 \checkmark \end{aligned}$$

$$\begin{aligned} 0 < -(0) + 2 & \quad 3(0) + 2(0) \geq 4 \\ 0 < 2 \checkmark & \quad 0 \geq 4 \times \end{aligned}$$

(3, -2)

(2, 4)

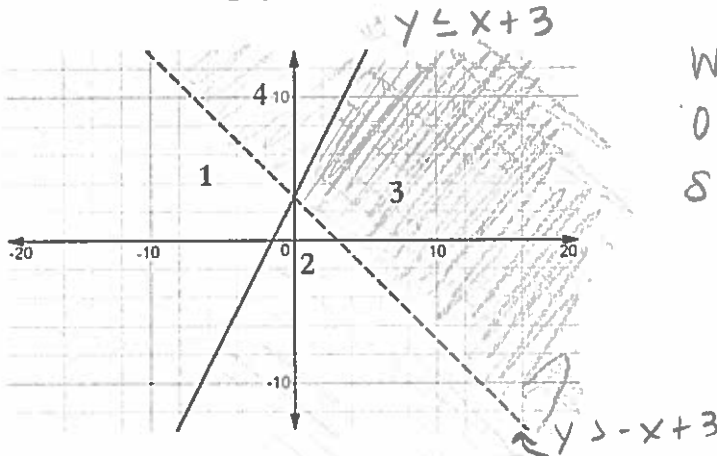
(0, 4)

(0, 0)

18. Given the graph of the following system of linear inequalities, which region should be shaded?

$$\begin{cases} y \leq x + 3 \\ y + x > 3 \end{cases}$$

$\rightarrow y > -x + 3$



Where is the overlapping shading?

A. Region 1

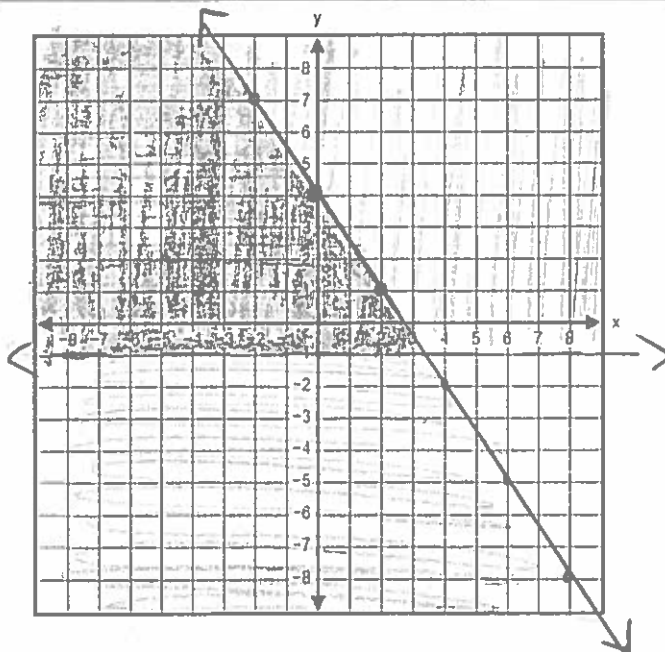
B. Region 2

C. Region 3

D. Region 4

Graph each system below.

$$\begin{aligned} 19. \quad y &\leq -\frac{3}{2}x + 4 \\ y &> -1 \end{aligned}$$



D

20. You are planning a cookout. You figure that you will need at least 5 packages of hot dogs and hamburgers. A package of hot dogs costs \$1.90 and a package of hamburgers costs \$5.20. You can spend a maximum of \$20 on the hot dogs and hamburgers.

a) Write a system of inequalities that can be used to find the number of packages of hot dogs and the number of packages of hamburgers you can buy.

$$D + H \geq 5$$

$$1.90D + 5.20H \leq 20$$

b) Identify two possible combinations of packages of hot dogs and hamburgers you can buy.

2 hot dogs
3 hamburgers

3 hot dogs
2 hamburgers

21. A niche restaurant sells two specials, a vegetarian special and a chicken special. On Friday, the restaurant sells 28 vegetarian specials and 44 chicken specials for a total of \$964.28 in sales. On Saturday, the restaurant sells 14 vegetarian specials and 52 chicken specials for a total of \$939.34 in sales.

a) Write a system of equations to find the price of a vegetarian special and the price of a chicken special.

$$28V + 44C = 964.28$$

$$14V + 52C = 939.34$$

b) Solve to find the price of a vegetarian special and the price of a chicken special.

$$\begin{array}{r}
 28V + 44C = 964.28 \\
 -2(14V + 52C = 939.34) \\
 \hline
 28V + 44C = 964.28 \\
 + -28V - 104C = -1878.68 \\
 \hline
 -60C = -914.40 \\
 \hline
 -60 \qquad -60 \\
 \hline
 C = 15.24
 \end{array}$$

$$\begin{array}{r}
 28V + 44(15.24) = 964.28 \\
 28V + 670.56 = 964.28 \\
 28V = 293.72 \\
 \frac{28V}{28} = \frac{293.72}{28} \\
 V = 10.49
 \end{array}$$

