

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

### Unit 3 Review

1. What are the coordinates of the midpoint of the line segment with endpoints  $(2, -5)$  and  $(8, 3)$ ?

- A.  $(3, -4)$
- B.  $(3, -1)$
- C.  $(5, -4)$
- D.  $(5, -1)$

2. The midpoint of  $\overline{AB}$  is  $M(4,2)$ . If the coordinates of  $A$  are  $(6,-4)$ , what are the coordinates of  $B$ ?

- A.  $(1,-3)$
- B.  $(2,8)$
- C.  $(5,-1)$
- D.  $(14,0)$

3. Danielle has twenty-seven coins consisting of quarters and dimes. The sum of money Danielle has is \$4.80. Write a system of equations that could be solved to determine how many of each coin Danielle has.

- A.  $q - d = 27$   
 $0.25q - 0.10d = 4.80$
- B.  $q + d = 27$   
 $0.25q + 0.10d = 4.80$
- C.  $q + d = 4.80$   
 $0.25q + 0.10d = 27$
- D.  $q + d = 27$   
 $0.25q - 0.10d = 4.80$

4. What is the length of  $\overline{AB}$  with endpoints  $A(-1, 0)$  and  $B(4, -3)$ ?

- A.  $\sqrt{6}$
- B.  $\sqrt{18}$
- C.  $\sqrt{34}$
- D.  $\sqrt{50}$

5. The Celluloid Cinema sold 150 tickets to a movie. Some of these were child tickets and the rest were adult tickets. A child ticket cost \$7.75 and an adult ticket cost \$10.25. If the cinema sold \$1470 worth of tickets, which system of equations could be used to determine how many adult tickets,  $a$ , and how many child tickets,  $c$ , were sold?

- A.  $a + c = 150$   
 $10.25a + 7.75c = 1470$
- B.  $a + c = 1470$   
 $10.25a + 7.75c = 150$
- C.  $a + c = 150$   
 $7.75a + 10.25c = 1470$
- D.  $a + c = 1470$   
 $7.75a + 10.25c = 150$

6. A farmer raises chickens and goats, and on this farm there are 35 heads and 116 feet, not including the farmer's. Write a system of equations that will allow you to find the number of chickens and goats on the farm.

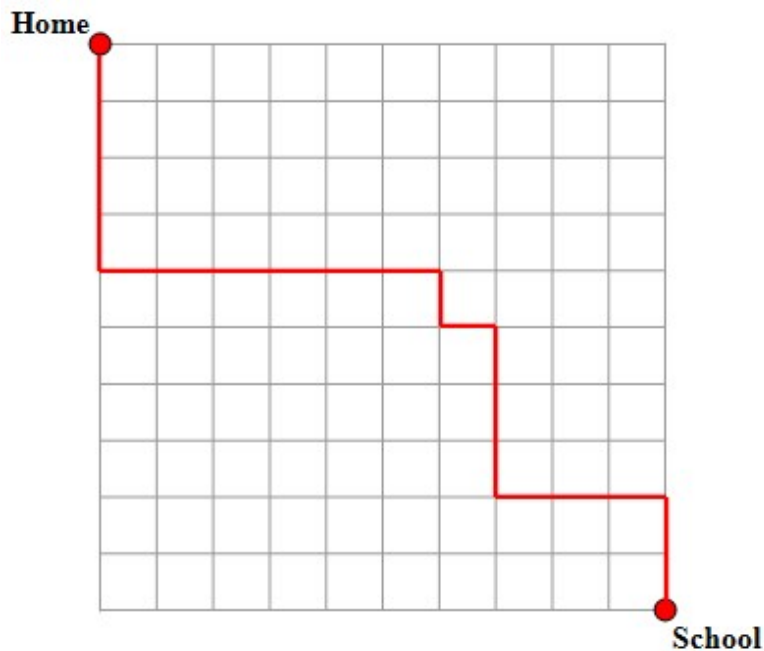
- A.  $c + g = 35$   
 $c + g = 116$
- B.  $c + g = 35$   
 $4c + 2g = 151$
- C.  $c + g = 35$   
 $2c + 4g = 116$
- D.  $c + g = 116$   
 $4c + 2g = 35$

7. Solve the following system of equations for  $x$ :

$$\begin{aligned} 2x + y &= 4 \\ x - 2y &= 7 \end{aligned}$$

- A. 2
- B. 3
- C. 5
- D. 7

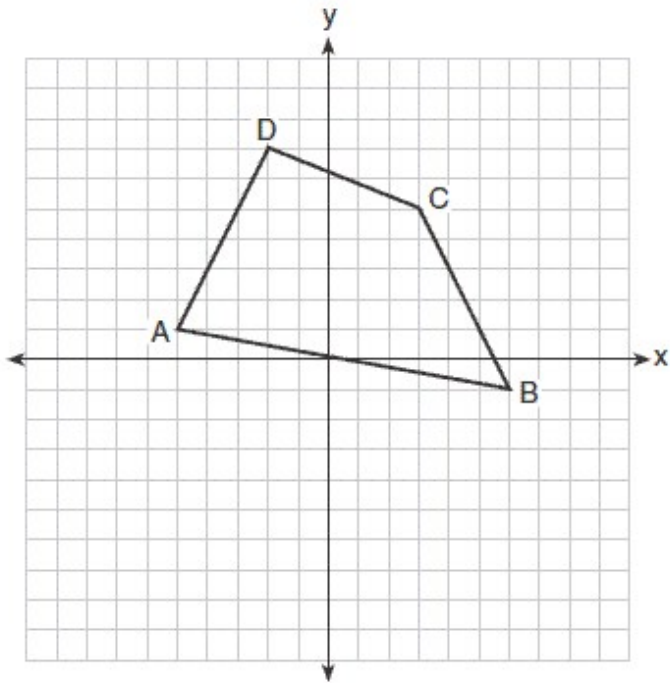
8. Andrea drew a map of the path her bus drives from her home to school. The distance between each line on the grid represents 1 mile.



How many miles does Andrea's bus drive from her home to school?

- A. 17 miles
- B. 18 miles
- C. 19 miles
- D. 20 miles

9. In the diagram below, quadrilateral  $ABCD$  has vertices  $A(-5,1)$ ,  $B(6,-1)$ ,  $C(3,5)$ , and  $D(-2,7)$ .



What are the coordinates of the midpoint of diagonal  $\overline{AC}$

?

- A. (-1,3)
- B. (1,3)
- C. (1,4)
- D. (2,3)

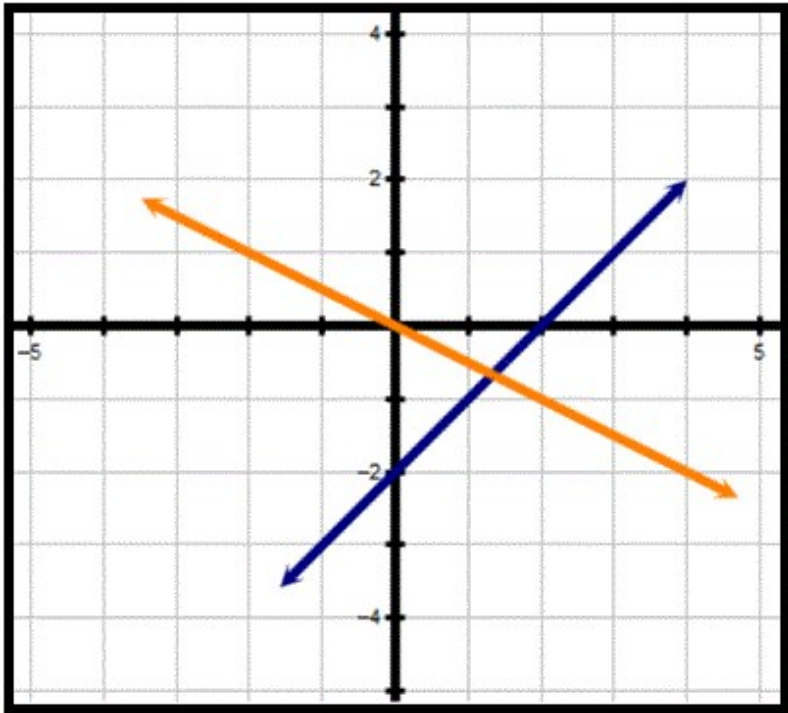
10. Solve the system of equations below.

$$4x - 2y = 16$$

$$-2y + 4x = 8$$

- A.  $x = 8, y = 6$
- B.  $x = 10, y = -4$
- C. No solution
- D. Infinitely many solutions

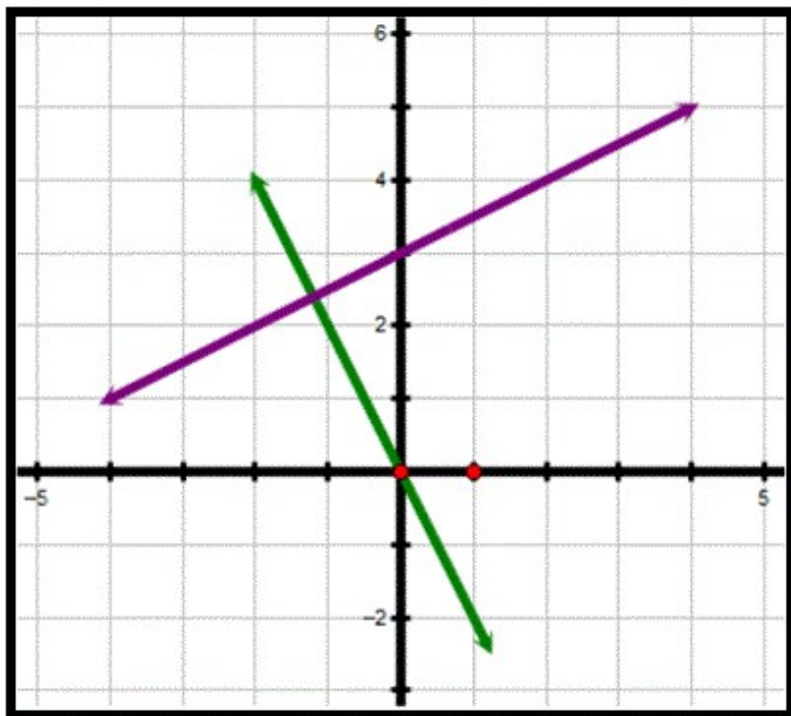
11. The graph of a system of equations is shown below.



Which system of equations represents the graph?

- A.  $y = \frac{1}{2}x - 2$   
 $y = 2x$
- B.  $y = -\frac{1}{2}x - 2$   
 $y = -2x$
- C.  $y = -\frac{1}{2}x$   
 $y = 2x$   
 $y = x - 2$
- D.  $y = -\frac{1}{2}x$

12. The graph of a system of equations is shown below.



Which system of equations represents the graph?

- A.  $y = \frac{1}{2}x$   
 $y = -2x - 3$
- B.  $y = \frac{1}{2}x + 3$   
 $y = -2x$
- C.  $y = \frac{1}{2}x - 3$   
 $y = -2x$
- D.  $y = -2x$   
 $y = x + 3$

13. During the 2011 season, hockey player Parker's earnings,  $p$ , were 0.009 million dollars more than those of his teammate Ramirez's earnings,  $r$ . The two players earned a total of 3.25 million dollars.

Which system of equations could be used to determine the amount each player earned, in millions of dollars?

A.  $p + 3.25 = r$   
 $r + 0.009 = p$

B.  $p + r = 3.25$   
 $p + 0.009 = r$

C.  $p + r = 3.25$   
 $r + 0.009 = p$

D.  $r - 3.25 = p$   
 $p + 0.009 = r$

14. Point  $M$  is the midpoint of  $\overline{AB}$ . If the coordinates of  $M$  are  $(2, 8)$  and the coordinates of  $A$  are  $(10, 12)$ , what are the coordinates of  $B$ ?

- A.  $(6, 10)$
- B.  $(-6, 4)$
- C.  $(-8, -4)$
- D.  $(18, 16)$

15. Mo's farm stand sold a total of 165 pounds of apples and peaches. She sold apples for \$1.75 per pound and peaches for \$2.50 per pound. If she made \$337.50, how many pounds of peaches did she sell?

- A. 11
- B. 18
- C. 65
- D. 100

16. The equations  $6x + 5y = 300$  and  $3x + 7y = 285$  represent the money collected from selling gift baskets in a school fundraising event. If  $x$  represents the cost for each snack gift basket and  $y$  represents the cost for each chocolate gift basket, what is the cost for each chocolate gift basket?

- A. \$20
- B. \$25
- C. \$30
- D. \$54

17. Jacob and Zachary go to the movie theater and purchase refreshments for their friends. Jacob spends a total of \$18.25 on two bags of popcorn and three drinks. Zachary spends a total of \$27.50 for four bags of popcorn and two drinks.

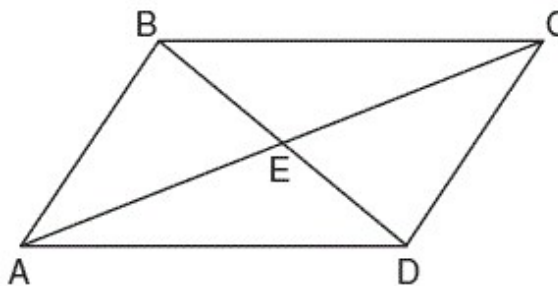
To the nearest cent, find the price of one drink and one bag of popcorn.

- A. Popcorn = \$5.00 and Drink = \$2.75
- B. Popcorn = \$5.75 and Drink = \$2.25
- C. Popcorn = \$5.50 and Drink = \$2.50
- D. Popcorn = \$5.25 and Drink = \$2.00

18. What is the length of a line segment whose endpoints have coordinates  $(5,3)$  and  $(1,6)$ ?

- A. 5
- B. 25
- C.  $\sqrt{17}$
- D.  $\sqrt{29}$

19. In the diagram below, parallelogram  $ABCD$  has vertices  $A(1,3)$ ,  $B(5,7)$ ,  $C(10,7)$ , and  $D(6,3)$ . Diagonals  $\overline{AC}$  and  $\overline{BD}$  intersect at  $E$ .



(Not drawn to scale)

What are the coordinates of point  $E$ ?

- A.  $(0.5, 2)$
- B.  $(4.5, 2)$
- C.  $(5.5, 5)$
- D.  $(7.5, 7)$

20. What is the value of  $x$  in the solution of the system of equations  $3x + 2y = 12$  and  $5x - 2y = 4$ ?

- A. 8
- B. 2
- C. 3
- D. 4

21. Jordan works for a landscape company during his summer vacation. He is paid \$12 per hour for mowing lawns and \$14 per hour for planting gardens. He can work a maximum of 40 hours per week, and would like to earn at least \$250 this week. If  $m$  represents the number of hours mowing lawns and  $g$  represents the number of hours planting gardens, which system of inequalities could be used to represent the given conditions?

- A.  $m + g \leq 40$   
 $12m + 14g \geq 250$
- B.  $m + g \geq 40$   
 $12m + 14g \leq 250$
- C.  $m + g \leq 40$   
 $12m + 14g \leq 250$
- D.  $m + g \geq 40$   
 $12m + 14g \geq 250$

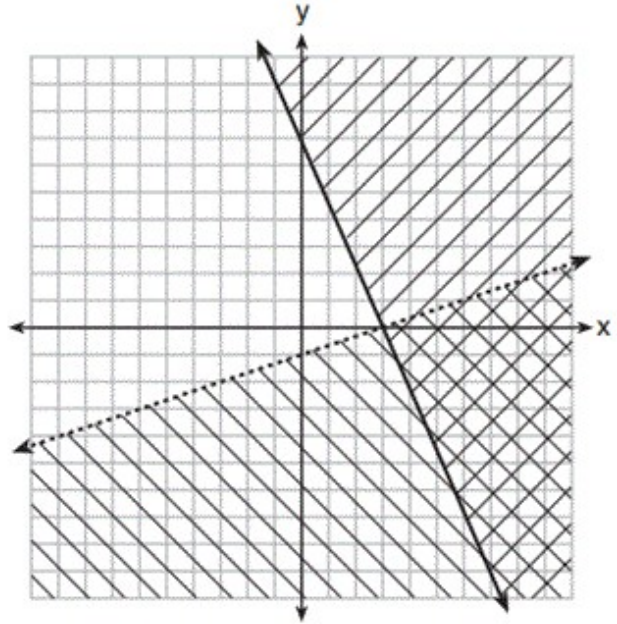
22. Which point is a solution to the system below?

$$2y < -12x + 4$$

$$y < -6x + 4$$

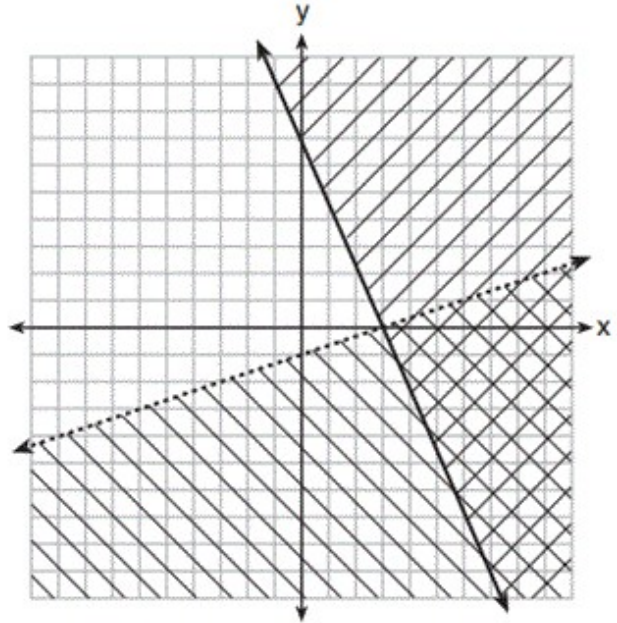
- A.  $(1, \frac{1}{2})$
- B.  $(0,6)$
- C.  $(-\frac{1}{2}, 5)$
- D.  $(-3,2)$

23. What is one point that lies in the solution set of the system of inequalities graphed below?



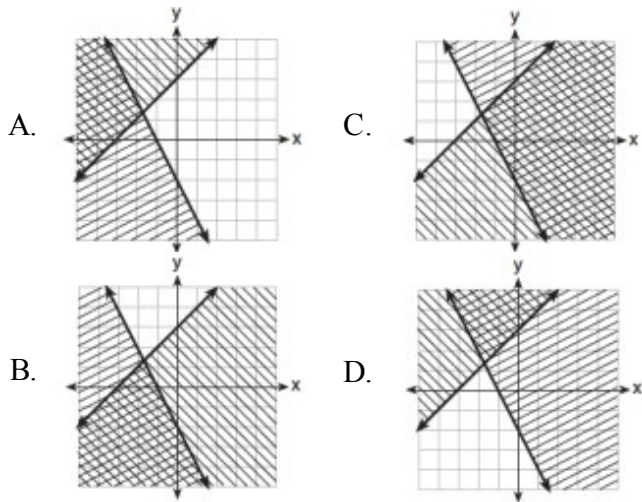
- A.  $(5, -1)$
- B.  $(0, 8)$
- C.  $(-1, -5)$
- D.  $(7, 7)$

24. What is one point that lies in the solution set of the system of inequalities graphed below?

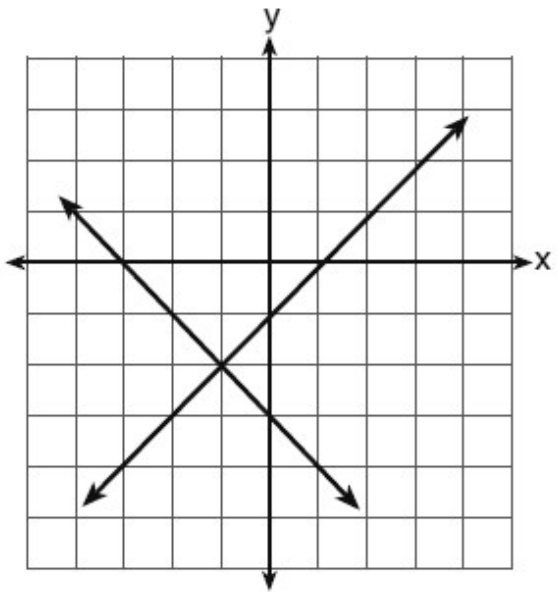


- A.  $(-3, -2)$
- B.  $(1, 1)$
- C.  $(5, 5)$
- D.  $(10, 0)$

25. Which graph represents the solution of  $y \leq x + 3$  and  $y \geq -2x - 2$ ?

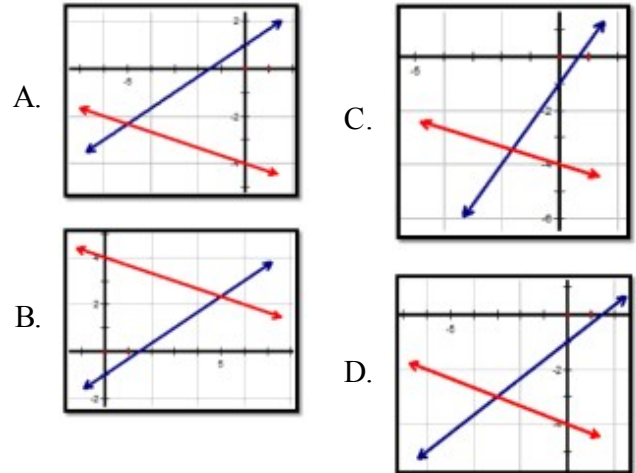


26. What is the solution of the system of equations shown in the graph below?



- A. (1,0) and (-3,0)
- B. (0,-3) and (0,-1)
- C. (-1,-2)
- D. (-2,-1)

27. Which graph shows the solution to the system of equations  $\begin{cases} 2x - 3y = 3 \\ x + 3y = -12 \end{cases}$ ?



28. Graph the following system of inequalities on a set of axes. Which of the following points falls in the solution area of the two inequalities?

$$y > -x + 2$$

$$y \leq \frac{2}{3}$$

$x + 5$

- A. (-2, 0)
- B. (1, 7)
- C. (4, 4)
- D. (-3, 4)

29. At which point will the graphs of the equations  $2x + y = 8$  and  $x - y = 4$  intersect?

- A. (0, 4)
- B. (4, 0)
- C. (-4, 0)
- D. (5, -2)

30. The solution to a system of linear inequalities is defined by:

$$y > 2x - 3$$

$$y < -x - 6$$

In which quadrant(s) of the coordinate plane is the solution located?

- A. I, II, III, IV
- B. I and IV, only
- C. II and III, only
- D. I, III, and IV, only