

**Algebra EOC Practice Test #3****Multiple Choice**

Identify the choice that best completes the statement or answers the question.

\_\_\_\_\_ 1. Write the monomial  $\frac{4x^{-2}y}{3y^{-3}}$  without the use of negative exponents.

a.  $\frac{4x^2y}{3y^3}$

c.  $\frac{4y^3}{3x^2}$

b.  $\frac{4y^4}{3x^2}$

d.  $4x^2y^4$

\_\_\_\_\_ 2. A company distributes its product by train and by truck. The cost of distributing by train can be modeled as  $-0.09x^2 + 34x - 100$ , and the cost of distributing by trucks can be modeled as  $-0.04x^2 + 22x - 175$ , where  $x$  is the number of tons of product distributed. Write a polynomial that represents the difference between the cost of distributing by train and the cost of distributing by trucks.

a.  $-0.05x^2 + 56x - 275$

c.  $-0.05x^2 + 12x + 75$

b.  $-0.13x^2 + 12x - 275$

d.  $-0.05x^2 + 12x - 275$

\_\_\_\_\_ 3. Find the slope of the line that contains  $(1, 6)$  and  $(1, -9)$ .

a. slope = 0

c. slope = 15

b. slope = 1

d. slope is undefined

\_\_\_\_\_ 4. A video store charges a monthly membership fee of \$7.50, but the charge to rent each movie is only \$1.00 per movie. Another store has no membership fee, but it costs \$2.50 to rent each movie. The equation below represents this situation where  $m$  is the number of movies rented each month.

$$7.50 + 1.00m = 2.50m$$

Which of the following is the number of movies that need to be rented each month for the total fees to be the same from either store?

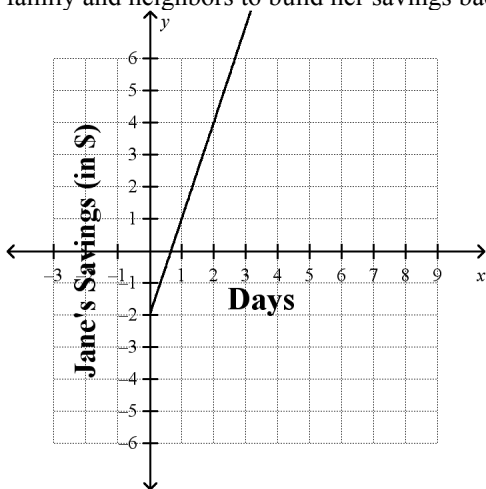
a. 3 movies

c. 7 movies

b. 5 movies

d. 9 movies

- \_\_\_\_\_ 5. Jane is in debt. She owes her brother money and has nothing in her piggy bank. She decides to work odd jobs for her family and neighbors to build her savings back up. The graph below represents Jane's situation.



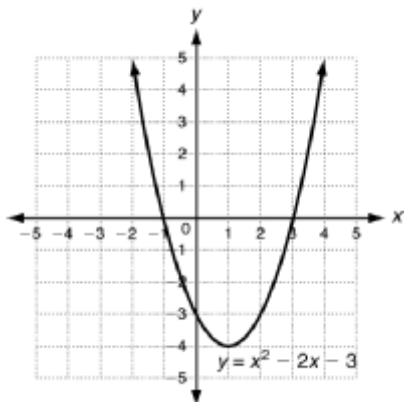
What is the equation of this linear function? What does the slope represent?

- a.  $y = 3x - 2$ ; The slope of 3 means Jane will be earning \$3 every day.
- b.  $y = 3x + 2$ ; The slope of 3 means it will take Jane 3 days to earn a dollar.
- c.  $y = -3x - 2$ ; The slope of -2 means Jane was \$2 in debt to her brother.
- d.  $y = x - 2$ ; The slope of 1 means Jane will be earning \$1 every day.

- \_\_\_\_\_ 6. Factor  $x^2 + 6x + 8$ .

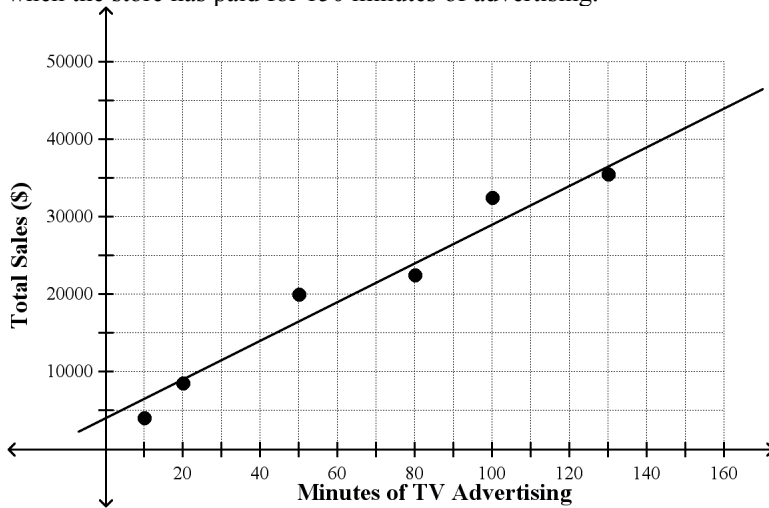
- a.  $(x + 1)(x + 8)$
- b.  $(x + 2)(x + 4)$
- c.  $(x + 1)(x + 5)$
- d.  $(x - 2)(x - 4)$

- \_\_\_\_\_ 7. Use the graph to find the solutions of  $x^2 - 2x - 3 = 0$ .



- a. -1 and 3
- b. -1 and -3
- c. 1 and -3
- d. 1 and 3

- \_\_\_\_\_ 8. The scatter plot shows the relationship between the weekly total sales (\$) and the number of different minutes of TV advertising the store purchased. Based on this relationship, use the line of best fit to predict what the total sales will be when the store has paid for 150 minutes of advertising.



- a. \$35,000  
b. \$38,000  
c. \$40,000  
d. \$42,000
- \_\_\_\_\_ 9. Which of the following is the equation of the line that has  $x$ -intercept = 7 and  $y$ -intercept = -2?

- a.  $2x - 7y = -14$   
b.  $2x + 7y = 14$   
c.  $2x - 7y = 14$   
d.  $2x + 7y = -14$

- \_\_\_\_\_ 10. Factor  $x^2 - 16$ .

- a.  $(x - 4)^2$   
b.  $(x + 4)(x - 4)$   
c.  $(x + 4)^2$   
d. cannot be factored

- \_\_\_\_\_ 11. Solve  $-2y > 10$ .

- a.  $y < -5$   
b.  $y > -5$   
c.  $y < 5$   
d.  $y > 5$

- \_\_\_\_\_ 12. The values in the table show a linear relationship. Find the slope.

$x$	6	8	11	15
$y$	4	10	19	31

- a. 3  
b. -3  
c.  $\frac{1}{3}$   
d.  $-\frac{1}{3}$

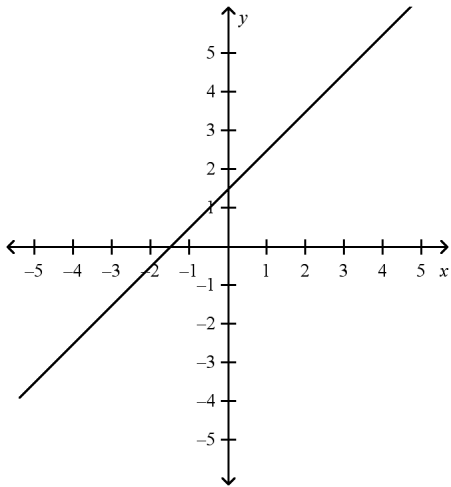
- \_\_\_\_\_ 13. Latisha is on page 30 of her book and reads 3 pages every night. Sal is on page 40 of the same book and reads 2 pages every night. How long will it take Latisha to be further in the book than Sal?
- a. 3 nights  
 b. 11 nights  
 c. 15 nights  
 d. 71 nights

- \_\_\_\_\_ 14. Which product results in  $x^2 + 10x + 25$ ?

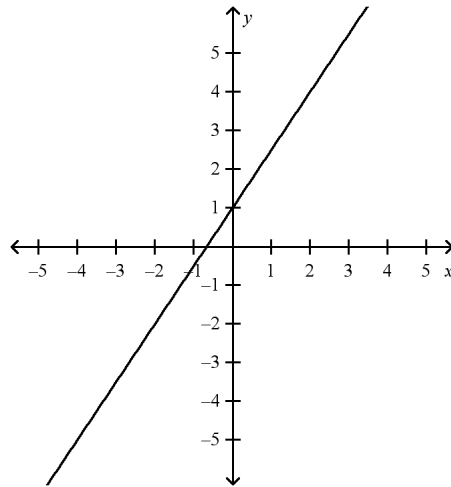
- a.  $(x - 5)^2$   
 b.  $(x + 5)^2$   
 c.  $(x + 5)(x - 5)$   
 d.  $(x + 5)(2x + 5)$

- \_\_\_\_\_ 15. Graph the line with the slope  $\frac{3}{2}$  and  $y$ -intercept 1.

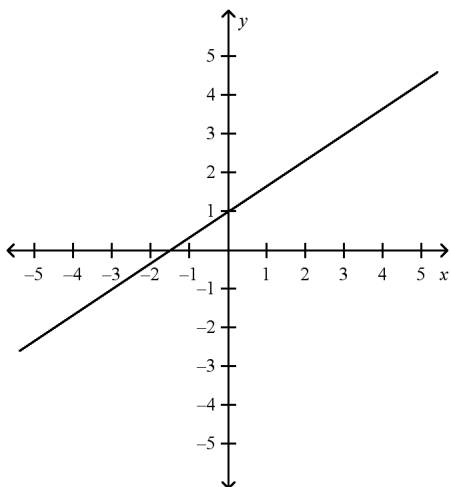
a.



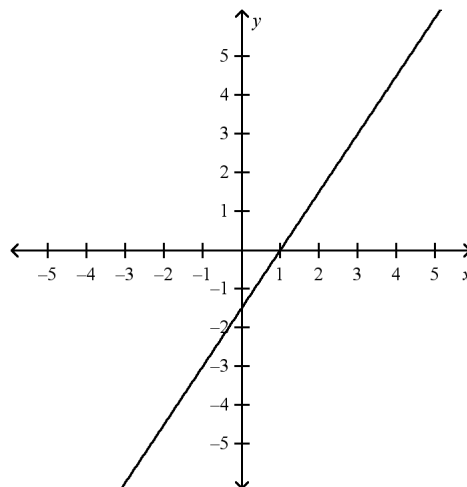
c.



b.



d.



\_\_\_\_\_ 16.  $U$  is the set of integers.  $G$  is the set of negative integers. What is the complement of set  $G$  in universe  $U$ ?

- a. natural numbers  
 b. whole numbers  
 c. positive integers  
 d.  $\{0\}$

\_\_\_\_\_ 17. A patio will be built in the shape of a trapezoid. The bases of the trapezoid will measure 14.5 ft and 22.5 ft. What is the minimum height of the trapezoid if the patio is to have an area of no less than 259 sq ft?

- a. 3.5 ft  
 b. 7 ft  
 c. 14 ft  
 d. 18.5 ft

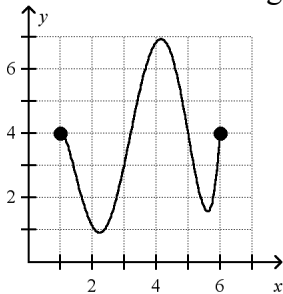
\_\_\_\_\_ 18. Simplify the quotient  $\frac{\sqrt{15}}{\sqrt{2}}$ .

- a.  $\frac{\sqrt{15}}{2}$   
 b.  $\frac{\sqrt{30}}{2}$   
 c.  $\sqrt{7.5}$   
 d.  $\frac{2}{\sqrt{30}}$

\_\_\_\_\_ 19. Factor  $5(x - 2) - 9x(x - 2)$ .

- a.  $-45x(x - 2)$   
 b.  $(x - 2)(9x - 5)$   
 c.  $(5 - 9x)(x - 2)(x - 2)$   
 d.  $(x - 2)(5 - 9x)$

\_\_\_\_\_ 20. Give the domain and range of the relation.



- a. D:  $0 \leq x \leq 7$ ; R:  $1 \leq y \leq 7$   
 b. D:  $1 \leq x \leq 6$ ; R:  $1 \leq y \leq 7$   
 c. D:  $2 \leq x \leq 6$ ; R:  $4 \leq y \leq 7$   
 d. D:  $1 \leq x \leq 7$ ; R:  $1 \leq y \leq 6$

\_\_\_\_\_ 21. Simplify  $(x^6)^3$ .

a.  $x^2$

c.  $x^9$

b.  $x^3$

d.  $x^{18}$

\_\_\_\_\_ 22. Given  $f(x) = 3 - x$  with domain  $D: \{-2, -1, 0, 1, 2\}$ . What is the range,  $R$ ?

a.  $R: \{5, 4, 0, 1, 2\}$

c.  $R: \{1, 2, 3, 4, 5\}$

b.  $R: \{5, 4, 0, 2, 1\}$

d.  $R: \{-1, -2, 3, 1, 2\}$

\_\_\_\_\_ 23. Use the zero product property to solve the equation  $(x + 3)(x - 2) = -4$ .

a. The solutions are 2 and  $-1$ .

c. The solutions are 3 and  $-2$ .

b. The solutions are  $-3$  and 2.

d. The solutions are  $-2$  and 1.

\_\_\_\_\_ 24. There are 2 lifeguards for every 34 people at a beach. How many people are there per lifeguard?

a. 16 people

c. 32 people

b. 17 people

d. 18 people

\_\_\_\_\_ 25. Isabel reads 12 books from the library each month for  $m$  months in a row. Each month her sister, Emma, reads  $\frac{1}{2}$  as many books as Isabel reads. Together they have read 108 books. The following equation represents this situation where  $m$  is the number of months that the girls have read.

$$12m + \frac{1}{2}(12m) = 108$$

Which of the following is the number of months it took Isabel and Emma to read 108 books?

a. 2 months

c. 6 months

b. 3 months

d. 12 months

\_\_\_\_\_ 26. Determine whether the pairing is a function. If it is a function, describe the rule that relates the input value to the output value.

input	7	10	16	22	31
output	2	5	11	17	26

a. The pairing is not a function.

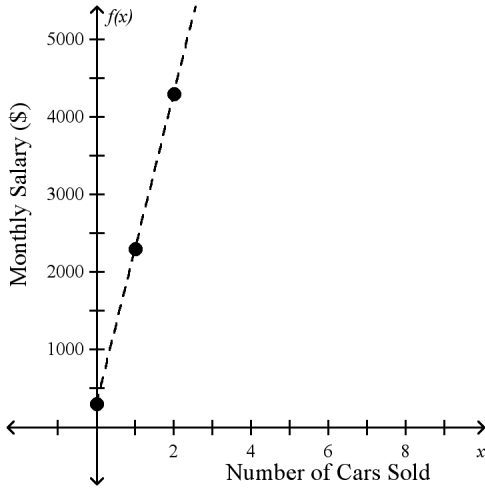
c. The pairing is a function. The rule is "input value multiplied by 5."

b. The pairing is a function. The rule is "subtract 3 from the input value."

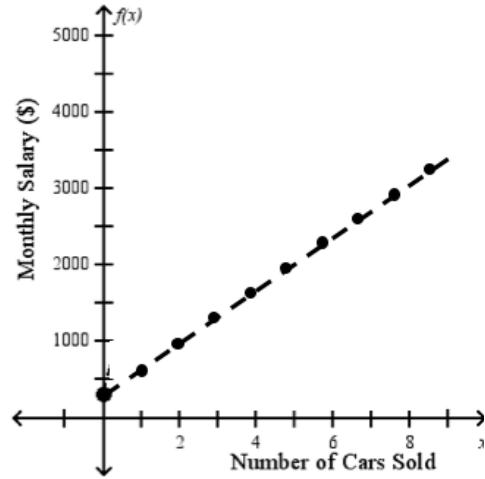
d. The pairing is a function. The rule is "subtract 5 from the input value."

27. Jennifer is a car saleswoman. She is paid a salary of \$2000 per month plus \$300 for each car that she sells. Her monthly salary can be modeled by the equation  $f(x) = 300x + 2000$  where  $x$  is the number of cars sold. Which of the following is a graph that represents this situation?

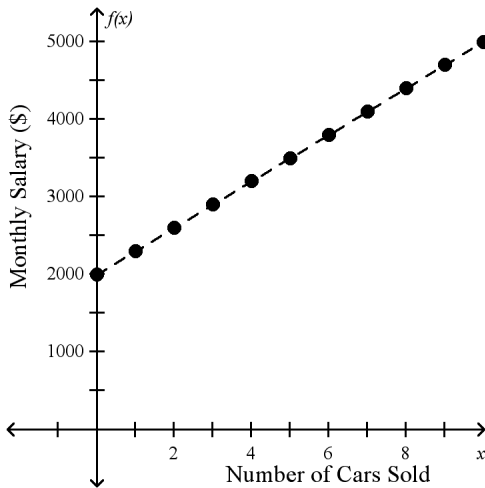
a.



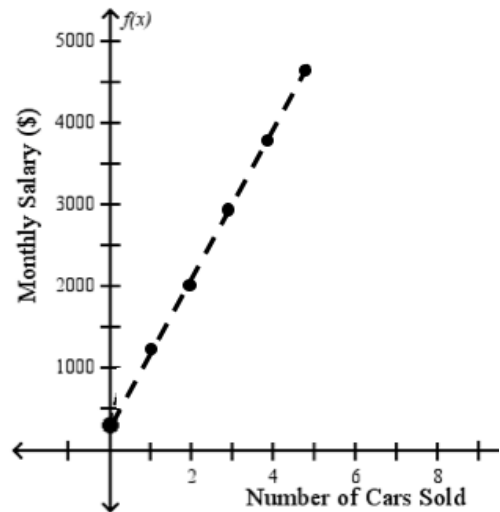
c.



b.



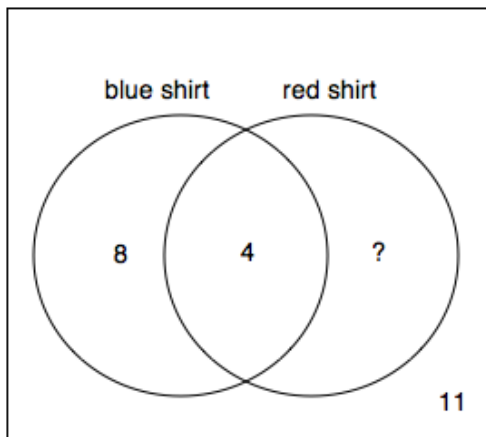
d.



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

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\_\_\_\_ 28. 30 people were asked if they wore a blue shirt or a red shirt this week. The Venn diagram shows the results of the survey.

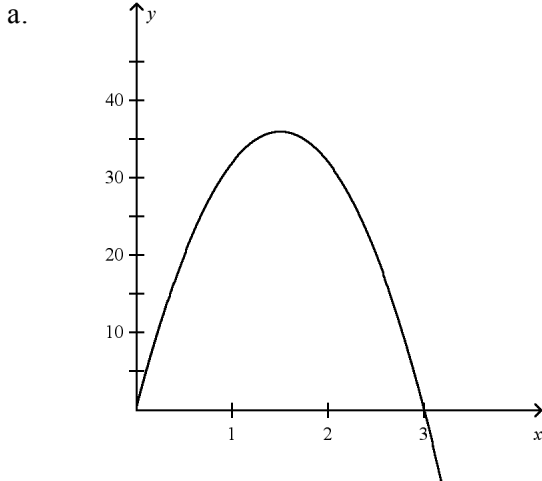


How many people wore a blue shirt, but not a red shirt, this week?

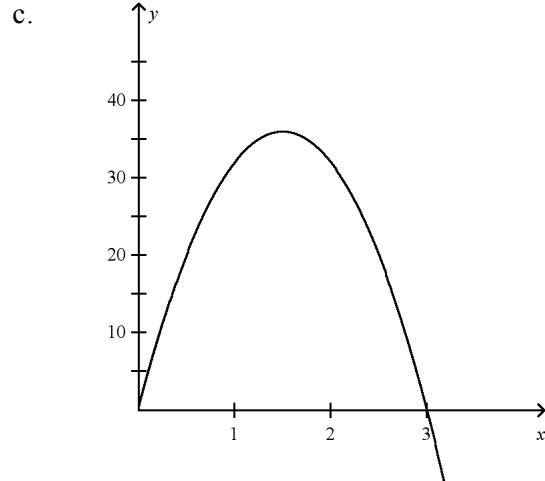
- a. 4
- b. 7
- c. 8
- d. 12



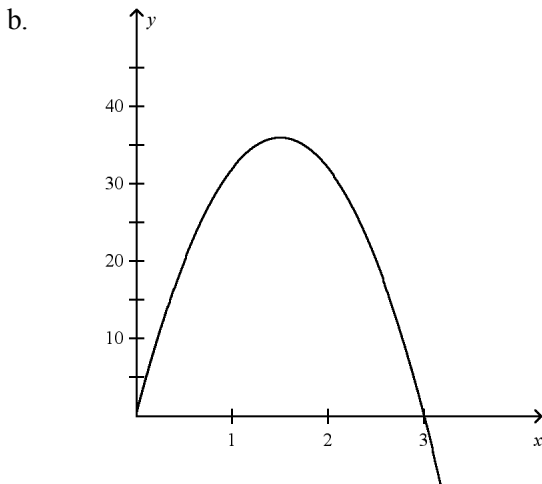
29. The height of a soccer ball that is kicked from the ground can be approximated by the function  $y = -16x^2 + 48x$ , where  $y$  is the height of the soccer ball in feet  $x$  seconds after it is kicked. Graph this function. Find the time it takes the soccer ball to reach its maximum height, the soccer ball's maximum height, and the time it takes the soccer ball to return to the ground.



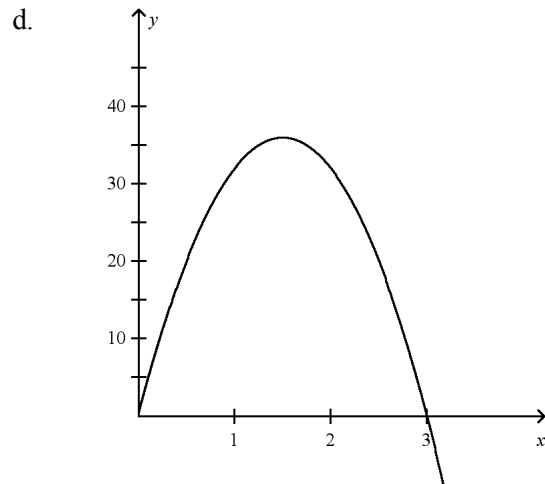
It takes the ball 36 seconds to reach its maximum height. The ball's maximum height is 3 feet. It takes the ball 36 seconds to return to the ground.



It takes the ball 1.5 seconds to reach its maximum height. The ball's maximum height is 36 feet. It takes the ball 1.5 seconds to return to the ground.



It takes the ball 1.5 seconds to reach its maximum height. The ball's maximum height is 36 feet. It takes the ball 3 seconds to return to the ground.



It takes the ball 3 seconds to reach its maximum height. The ball's maximum height is 36 feet. It takes the ball 3 seconds to return to the ground.

\_\_\_\_\_ 30. Solve  $A = \frac{1}{2}bh$  for  $b$ .

a.  $b = 2A + h$

c.  $b = \frac{2h}{a}$

b.  $b = \frac{2A}{h}$

d.  $b = 2h - a$

\_\_\_\_\_ 31. Divide:  $(10y^2 + 6y) \div (2y)$

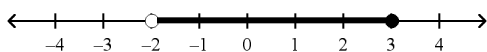
a.  $\frac{5}{y} + 3$

c.  $5y^2 + 3y$

b.  $5y + 3$

d.  $5 + \frac{3}{y}$

\_\_\_\_\_ 32. Which inequality is shown by the graph below?



a.  $-2 \leq w \leq 3$

c.  $w \geq 3$  and  $w < -2$

b.  $-2 < w \leq 3$

d.  $-2 > w \geq 3$

\_\_\_\_\_ 33. Solve  $y = mx + b$  for  $m$ .

a.  $m = \frac{y - b}{x}$

c.  $m = y + bx$

b.  $m = \frac{x}{y - b}$

d.  $m = \frac{y + b}{x}$

\_\_\_\_\_ 34. Write an equation for the line that contains the point  $(-1, 2)$  and is perpendicular to the line  $y = 3$ .

a.  $x + y = -1$

c.  $y = 2$

b.  $x + y = 1$

d.  $x = -1$

\_\_\_\_\_ 35. Which of the following is the solution to the inequality?

$$x + 4 > 6(x + 2)$$

a.  $x < 2$

c.  $x > -1.6$

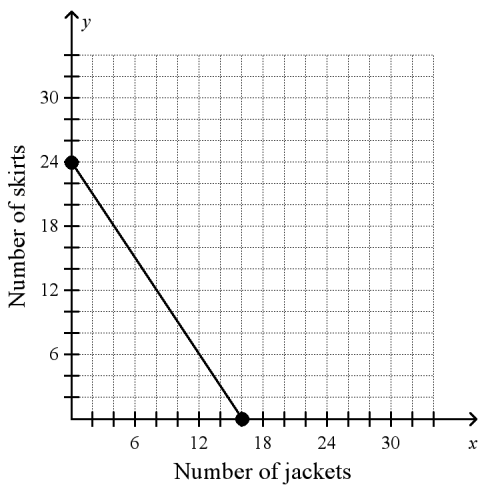
b.  $x > 2$

d.  $x < -1.6$



41. A clothing manufacturer needs 2.4 yards of fabric to make a jacket and 1.6 yards of fabric to make a matching skirt. The number of jackets,  $x$ , and skirts,  $y$ , that can be made from a 48-yard bolt of fabric can be represented by the equation  $2.4x + 1.6y = 48$ . Graph the function and find its intercepts. What does each intercept represent?

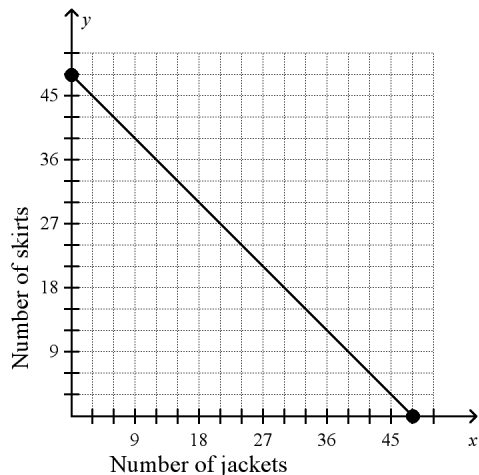
a.



The  $x$ -intercept is  $(16, 0)$ . The  $x$ -intercept gives the total number of skirts that can be made from one bolt of fabric when only skirts are made.

The  $y$ -intercept is  $(0, 24)$ . The  $y$ -intercept gives the total number of jackets that can be made from one bolt of fabric when only jackets are made.

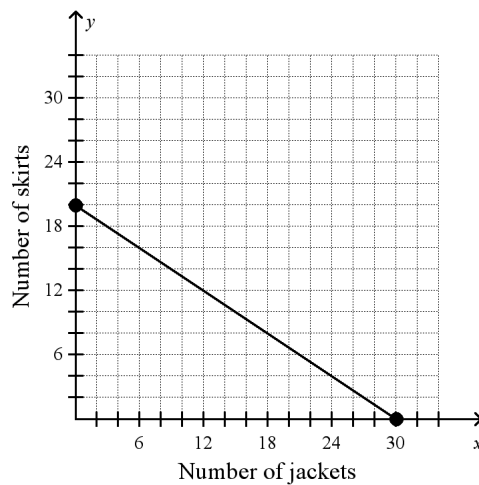
b.



The  $x$ -intercept is  $(48, 0)$ . The  $x$ -intercept gives the total number of jackets that can be made from one bolt of fabric when only jackets are made.

The  $y$ -intercept is  $(0, 48)$ . The  $y$ -intercept gives the total number of skirts that can be made from one bolt of fabric when only skirts are made.

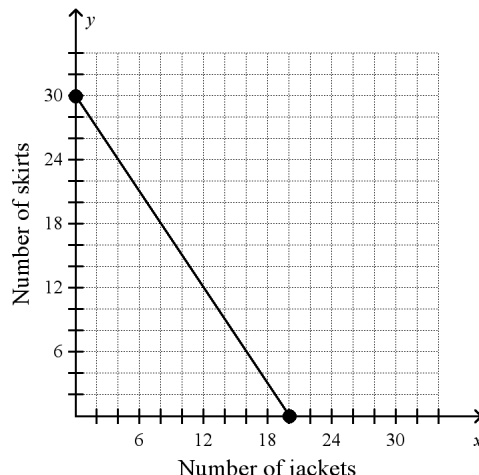
c.



The  $x$ -intercept is  $(0, 20)$ . The  $x$ -intercept gives the total number of skirts that can be made from one bolt of fabric when only skirts are made.

The  $y$ -intercept is  $(30, 0)$ . The  $y$ -intercept gives the total number of jackets that can be made from one bolt of fabric when only jackets are made.

d.



The  $x$ -intercept is  $(20, 0)$ . The  $x$ -intercept gives the total number of jackets that can be made from one bolt of fabric when only jackets are made.

The  $y$ -intercept is  $(0, 30)$ . The  $y$ -intercept gives the total number of skirts that can be made from one bolt of fabric when only skirts are made.

\_\_\_\_\_ 42. Solve  $\begin{cases} 3x - y = 7 \\ 2x - y = 5 \end{cases}$ .

- a.  $(-9, -2)$
- b.  $(-2, -9)$
- c.  $(-1, 2)$
- d.  $(2, -1)$

\_\_\_\_\_ 43. Solve  $-a + 7 = 2a - 8$ .

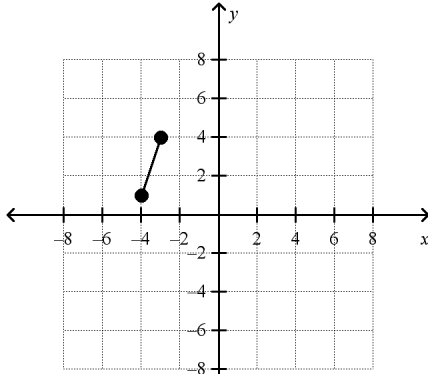
- a.  $-3$
- b.  $-\frac{1}{3}$
- c.  $5$
- d.  $15$

\_\_\_\_\_ 44. Write an equation in slope-intercept form for the line that passes through  $(4, 4)$  and has a  $x$ -intercept of 3.

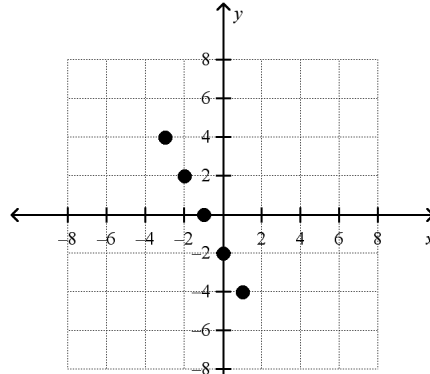
- a.  $y = 4x + 3$
- b.  $y = \frac{1}{4}x - 12$
- c.  $y = -4x - 12$
- d.  $y = 4x - 12$

\_\_\_\_\_ 45. Graph  $x + 2y = -2$  for the domain  $D: \{-4, -2, 0, 2, 4\}$ .

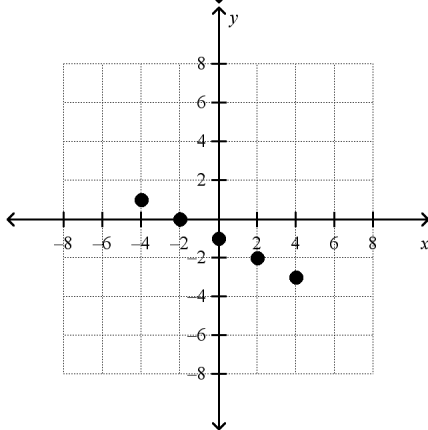
a.



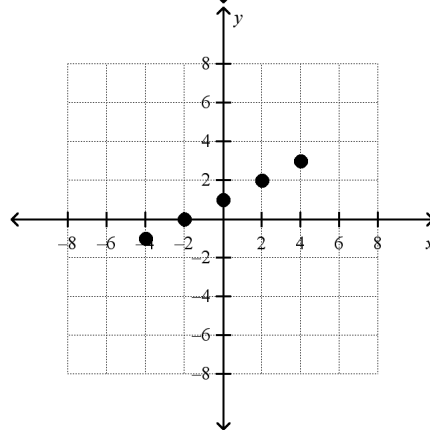
c.



b.



d.



\_\_\_\_\_ 46. Simplify  $\sqrt{\frac{300}{49}}$ .

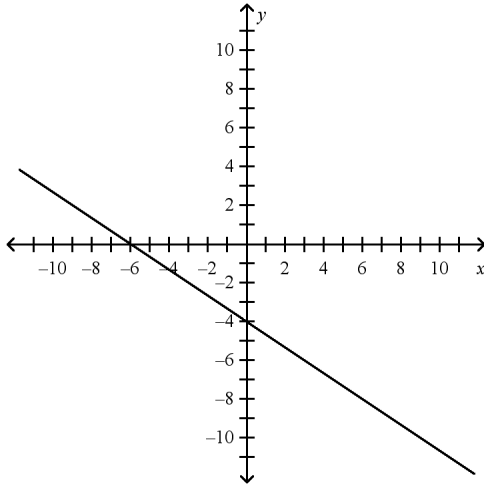
a.  $\frac{3\sqrt{10}}{7}$

c.  $\frac{10\sqrt{3}}{7}$

b.  $\frac{3}{7}$

d.  $\frac{30}{7}$

\_\_\_\_\_ 47. Find the  $x$ - and  $y$ -intercepts.



a.  $x$ -intercept:  $-6$ ,  $y$ -intercept:  $4$

c.  $x$ -intercept:  $-4$ ,  $y$ -intercept:  $-6$

b.  $x$ -intercept:  $6$ ,  $y$ -intercept:  $-4$

d.  $x$ -intercept:  $-6$ ,  $y$ -intercept:  $-4$

\_\_\_\_\_ 48. A bakery has an order to make 100 cupcakes. The workers can frost and decorate 3 cupcakes per minute. Let  $x$  be the number of minutes the workers have been working. Write an inequality that says the number of cupcakes remaining to be decorated is less than 20.

a.  $3x - 100 < 20$

c.  $100 - 3x \leq 20$

b.  $100 + 3x < 20$

d.  $100 - 3x < 20$

\_\_\_\_\_ 49. Which system has an infinite number of solutions?

a. 
$$\begin{cases} x + 2 = y \\ 4 = 2y - x \end{cases}$$

c. 
$$\begin{cases} y + 3 = 2x \\ 4x = 2y - 3 \end{cases}$$

b. 
$$\begin{cases} 2y + 6 = 4x \\ -3 = y - 2x \end{cases}$$

d. 
$$\begin{cases} y = 2x - 5 \\ -2 = y - 2x \end{cases}$$

\_\_\_\_ 50. Solve  $\frac{2}{8} = \frac{6}{m}$ .

- a. 12  
b. 24

- c. 36  
d. 48

\_\_\_\_ 51. Let  $A = \{a, b, d, f\}$  and  $B$  be a sets in the universe  $U = \{\text{letters of the alphabet}\}$ . If  $A \cup B = \{a, b, d, e, f, g\}$ , which could be set  $B$ ?

- a.  $B = \{e, f, g, h\}$   
b.  $B = \{a, b, d, f, g, h\}$

- c.  $B = \{e, f, g, 4, 9\}$   
d.  $B = \{e, f, g\}$

\_\_\_\_ 52. Simplify  $\frac{a^8}{a^2}$ .

- a.  $a^4$   
b.  $a^6$

- c.  $a^{10}$   
d.  $a^{16}$

\_\_\_\_ 53. Divide  $(15a^4 + 20a^3 - 5a^2)$  by  $-5a$ .

- a.  $10a^3 + 15a^2 - a$   
b.  $-3a^3 - 4a^2 + a$

- c.  $3a^4 - 4a^2 + 5a$   
d.  $-10a^3 - 15a^2 - a$

\_\_\_\_ 54. Solve  $x^2 - 12 = -4x$  by factoring.

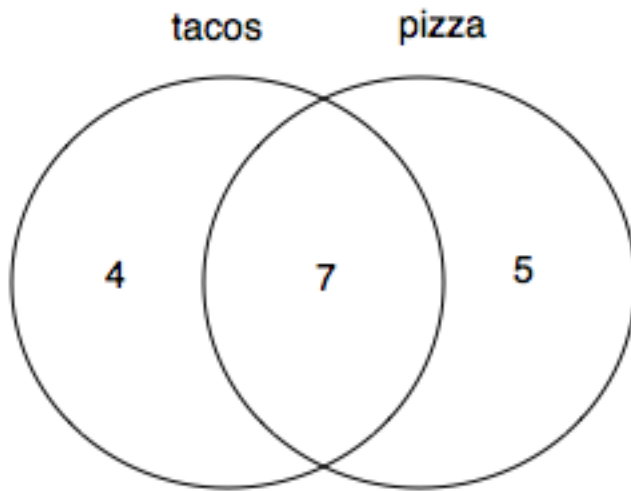
- a.  $x = -2$  or  $x = 6$   
b.  $x = -3$  or  $x = 4$

- c.  $x = 2$  or  $x = -6$   
d.  $x = 3$  or  $x = -4$

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

ID: A

\_\_\_\_ 55. A survey of 16 people were asked if they like tacos or pizza. The results of the survey are illustrated in the Venn diagram.



How many people surveyed do not like pizza?

- a. 2                      b. 4                      c. 5                      d. 11



**Algebra EOC Practice Test #3**  
**Answer Section****MULTIPLE CHOICE**

1. ANS: B	PTS: 1	STA: MA.912.A.4.1
2. ANS: C	PTS: 1	STA: MA.912.A.4.2
3. ANS: D	PTS: 1	STA: MA.912.A.3.9
4. ANS: B	PTS: 1	STA: MA.912.A.3.1
5. ANS: A	PTS: 1	STA: MA.912.A.3.11
6. ANS: B	PTS: 1	STA: MA.912.A.4.3
7. ANS: A	PTS: 1	STA: MA.912.A.7.1
8. ANS: D	PTS: 1	STA: MA.912.A.3.11
9. ANS: C	PTS: 1	STA: MA.912.A.3.10
10. ANS: B	PTS: 1	STA: MA.912.A.4.3
11. ANS: A	PTS: 1	STA: MA.912.A.3.4
12. ANS: A	PTS: 1	STA: MA.912.A.3.9
13. ANS: B	PTS: 1	STA: MA.912.A.3.5
14. ANS: B	PTS: 1	STA: MA.912.A.4.2
15. ANS: C	PTS: 1	STA: MA.912.A.3.8
16. ANS: B	PTS: 1	STA: MA.912.D.7.1
17. ANS: C	PTS: 1	STA: MA.912.A.3.5
18. ANS: B	PTS: 1	STA: MA.912.A.6.2
19. ANS: D	PTS: 1	STA: MA.912.A.4.3
20. ANS: B	PTS: 1	STA: MA.912.A.2.4
21. ANS: D	PTS: 1	STA: MA.912.A.4.1
22. ANS: B	PTS: 1	STA: MA.912.A.2.4
23. ANS: D	PTS: 1	STA: MA.912.A.1.8
24. ANS: B	PTS: 1	STA: MA.912.A.5.4
25. ANS: C	PTS: 1	STA: MA.912.A.3.1
26. ANS: D	PTS: 1	STA: MA.912.A.2.3
27. ANS: B	PTS: 1	STA: MA.912.A.3.8
28. ANS: C	PTS: 1	STA: MA.912.D.7.2
29. ANS: B	PTS: 1	STA: MA.912.A.7.1
30. ANS: B	PTS: 1	STA: MA.912.A.3.3
31. ANS: B	PTS: 1	STA: MA.912.A.4.4
32. ANS: B	PTS: 1	STA: MA.912.A.3.4
33. ANS: A	PTS: 1	STA: MA.912.A.3.3
34. ANS: D	PTS: 1	STA: MA.912.A.3.10
35. ANS: D	PTS: 1	STA: MA.912.A.3.4
36. ANS: D	PTS: 1	STA: MA.912.A.5.4
37. ANS: B	PTS: 1	STA: MA.912.A.4.2
38. ANS: C	PTS: 1	STA: MA.912.A.6.1
39. ANS: B	PTS: 1	STA: MA.912.A.3.3
40. ANS: B	PTS: 1	STA: MA.912.A.2.3

41. ANS: D	PTS: 1	STA: MA.912.A.3.8
42. ANS: D	PTS: 1	STA: MA.912.A.3.14
43. ANS: C	PTS: 1	STA: MA.912.A.3.1
44. ANS: D	PTS: 1	STA: MA.912.A.3.10
45. ANS: B	PTS: 1	STA: MA.912.A.2.4
46. ANS: C	PTS: 1	STA: MA.912.A.6.1
47. ANS: D	PTS: 1	STA: MA.912.A.3.9
48. ANS: D	PTS: 1	STA: MA.912.A.3.5
49. ANS: B	PTS: 1	STA: MA.912.A.3.14
50. ANS: B	PTS: 1	STA: MA.912.A.5.4
51. ANS: D	PTS: 1	STA: MA.912.D.7.1
52. ANS: B	PTS: 1	STA: MA.912.A.4.1
53. ANS: B	PTS: 1	STA: MA.912.A.4.4
54. ANS: C	PTS: 1	STA: MA.912.A.7.2
55. ANS: B	PTS: 1	STA: MA.912.D.7.2