

Algebra EOC Practice Test #1**Multiple Choice**

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

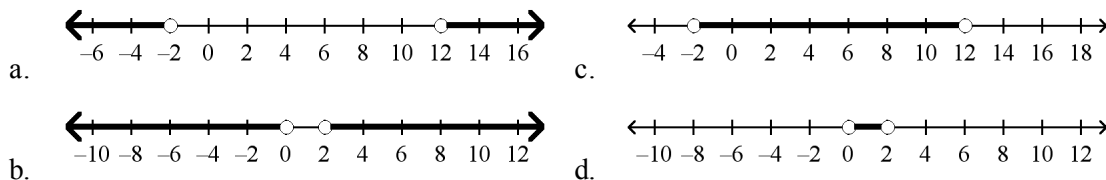
- _____ 1. George is helping the manager of the local produce market expand her business by distributing flyers around the neighborhood. He gets paid \$20 a day as well as \$0.05 for every flyer he distributes. George would like to earn at least \$65 each day. Which of the following represents this situation, where x is the number of flyers distributed.

a. $20 + 0.05x \leq 65$ c. $20 + 0.05x \geq 65$
b. $20 + 5x \leq 65$ d. $20 + 5x \geq 65$

- _____ 2. Divide $(16x^6 - 12x^4 + 4x^2)$ by $4x^2$.

a. $4x^3 - 3x^2 + 1$ c. $4x^4 - 3x^2 + 1$
b. $4x^4 - 3x^2$ d. $12x^4 - 8x^2 + 0$

- _____ 3. Which graph represents the solutions of $p + 1 < -1$ OR $p - 5 > 7$?



- _____ 4. John is considering accepting one of two sales positions. ABC Company offers a yearly salary of \$45,000. XYZ Company offers a yearly salary of \$38,000 plus a 2% annual commission on sales. For what amount of sales s is the salary at XYZ Company greater than the salary at ABC Company?

a. $s > 7000$ c. $s > 70,000$
b. $s > 35,000$ d. $s > 350,000$

- _____ 5. Solve $\frac{4}{s} = \frac{-2}{9}$.

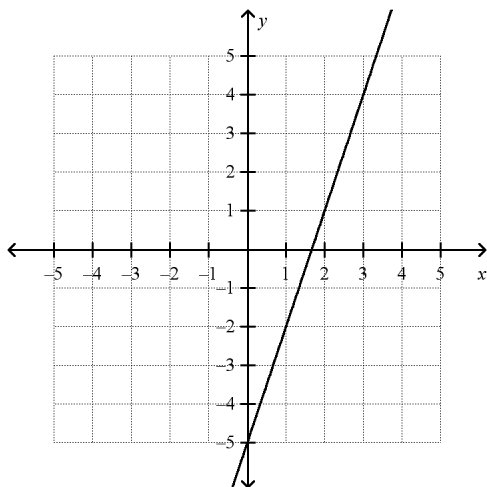
a. -4.5 c. 18
b. -18 d. 4.5

- _____ 6. The average of Paula's two test scores must be 80 or more for her to get at least a B in the class. She got a 72 on her first test. What grades can she get on the second test to make at least a B in the class?
- a. at least 76 c. at least 88
b. at least 84 d. at least 92

Name: _____

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_____ 7. What is the equation of the line shown in the graph?



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

b. $y = -3x - 5$

c. $y = 3x - 5$

d. $y = 2x - 5$

_____ 8. Solve $m - 8 \leq 14$.

a. $m \leq 6$

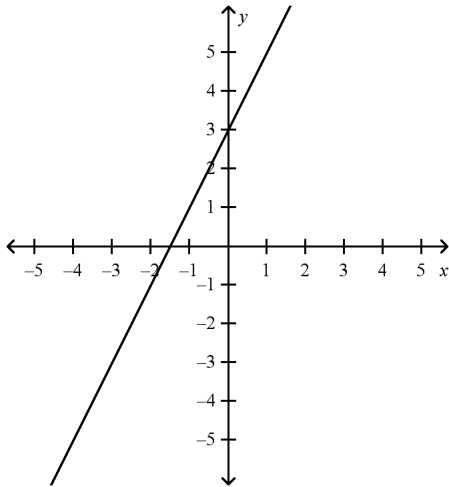
b. $m \geq 6$

c. $m \leq 22$

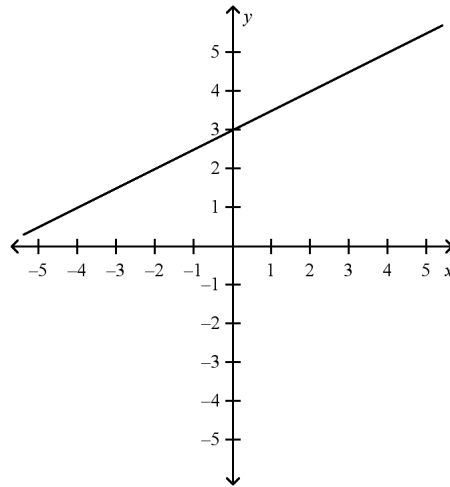
d. $m \geq 22$

_____ 9. Graph the line with the slope $\frac{1}{2}$ and y-intercept 3.

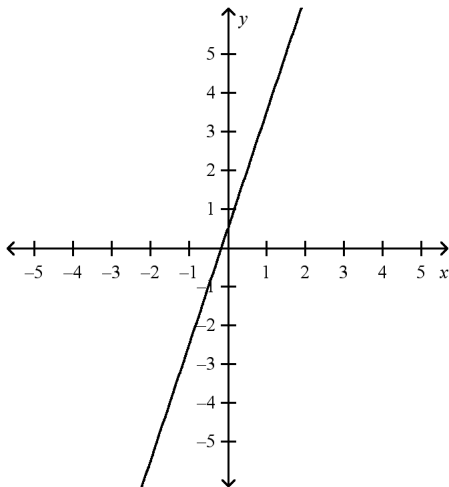
a.



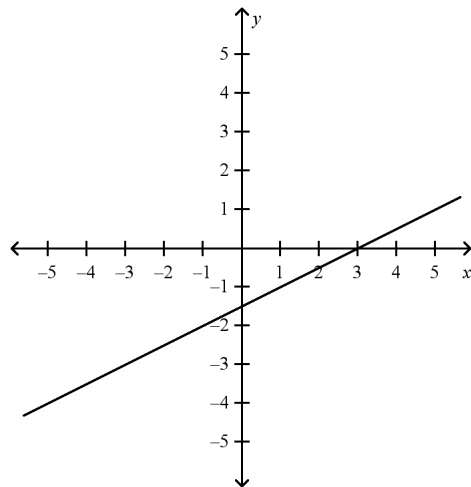
c.



b.



d.



_____ 10. Which of the following relations is a function?

- a. $\{(-2, -2), (-2, -1), (-2, 0), (-2, 1), (-2, 2)\}$
- b. $\{(1, 0), (-1, 0), (2, 1), (-2, 1), (3, 2), (-3, 2)\}$
- c. $\{(-2, 1), (-1, 2), (0, 0), (-1, 1), (2, -2)\}$
- d. $\{(-3, 3), (1, 3), (-3, 2), (1, 2), (-3, 1), (1, 1)\}$

_____ 11. Simplify $(a^3b)^2$.

a. a^3b^2

c. a^6b^2

b. a^6b

d. a^9b^2

_____ 12. Simplify the expression $\sqrt{\frac{48}{147}}$.

a. $\frac{4}{7}$

c. $\frac{16}{49}$

b. $\frac{4}{7}\sqrt{3}$

d. $\frac{\sqrt{48}}{\sqrt{147}}$

_____ 13. The formula for the resistance of a conductor with voltage V and current I is $r = \frac{V}{I}$. Solve for V .

a. $I = Vr$

c. $V = Ir$

b. $V = \frac{I}{r}$

d. $V = \frac{r}{I}$

_____ 14. Which system has no solution?

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

c. $\begin{cases} y = \frac{1}{2}x + 6 \\ 2x + 5 = y \end{cases}$

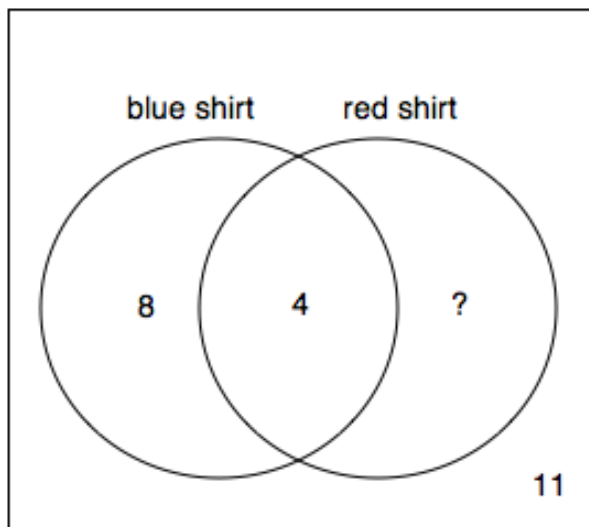
b. $\begin{cases} 2y = 2x + 8 \\ -2x = 2y - 8 \end{cases}$

d. $\begin{cases} y = 4x + 1 \\ y - 1 = 4x \end{cases}$

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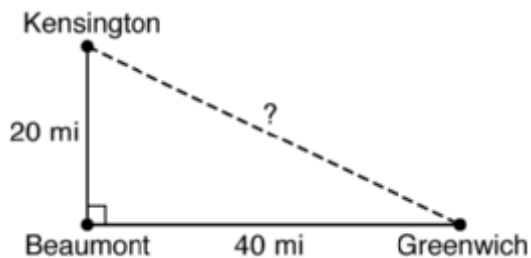
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- _____ 15. 30 people were asked if they wore a blue shirt or a red shirt this week. The Venn diagram shows the results of the survey.



What is the missing value in the Venn diagram?

- a. 7
b. 12
c. 18
d. 19
- _____ 16. Look at the map below.



Which is the distance between Kensington and Greenwich?

- a. $20\sqrt{3}$ mi
b. $20\sqrt{5}$ mi
c. $40\sqrt{3}$ mi
d. $40\sqrt{5}$ mi
- _____ 17. A sales clerk earns a 3% commission on each sale. What is the commission earned on a sale of \$4450?
- a. \$133.50
b. \$148.33
c. \$1335.00
d. \$13.35

_____ 18. Given $f(x) = x^2 + 1$ with domain $D: \{-2, -1, 0, 1, 3\}$. What is the range, R ?

a. $R: \{-1, -2, 0, 1, 3\}$

c. $R: \{5, 2, 1, 2, 10\}$

b. $R: \{4, 1, 0, 1, 9\}$

d. $R: \{3, 0, -1, 0, 8\}$

_____ 19. Solve $y + w - \frac{3}{4}z = 0$ for z .

a. $z = \frac{4}{3}(y + w)$

c. $z = \frac{4}{3}w + y$

b. $z = \frac{3}{4}(y + w)$

d. $z = \frac{4y}{3} + w$

_____ 20. Gloria earns 1.5 times her normal hourly pay for each hour that she works over 40 hours in a week. Her normal pay is p dollars per hour. Last week Gloria worked 47 hours and earned \$489.85. The following equation represents this situation where p is Gloria's normal hourly pay in dollars per hour.

$$40p + 7(1.5p) = 489.85$$

What is Gloria's normal hourly pay?

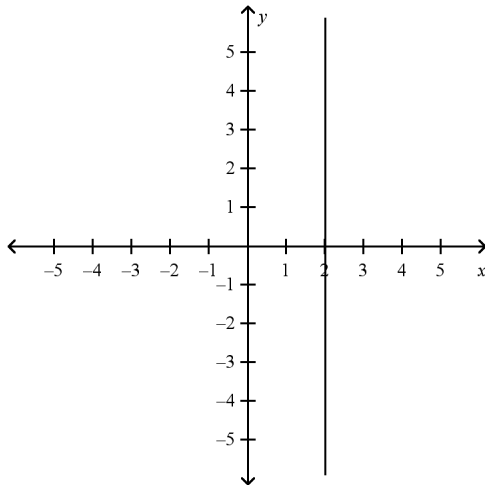
a. \$5.90

c. \$8.70

b. \$6.95

d. \$9.70

_____ 21. Tell whether the slope of the line is positive, negative, zero, or undefined.



a. negative

c. undefined

b. positive

d. zero

_____ 22. Let $A = \{a, b, d, f, g\}$ and B be a sets in the universe $U = \{\text{letters of the alphabet}\}$. If $A \cap B = \{b, d\}$, which could be set B ?

a. $B = \{b, d, g\}$

c. $B = \{b, d, 5, e\}$

b. $B = \{b, d, k\}$

d. $B = \{a, f, g\}$

_____ 23. Leah scored p points in the first half of the basketball game. In the second half, she scored 3 more than $\frac{1}{2}$ the number of points she scored in the first half of the game. Altogether, she scored 21 points in the game. The following equation represents this situation where p represents the number of points Leah scored in the first half.

$$p + \left(\frac{1}{2}p + 3 \right) = 21$$

How many points did Leah score in the first half?

a. 6

c. 12

b. 9

d. 18

_____ 24. Subtract $(6a^2 + 3a) - (4a^2 + 2a)$.

a. $2a^2 + a$

c. 3

b. $2a^2 + 5a$

d. $3a^3$

_____ 25. Which of the following is the equation of the line that has x -intercept = -2 and y -intercept = -4?

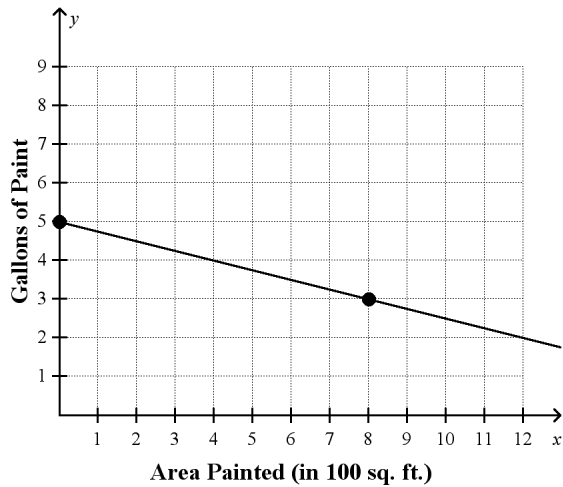
a. $y = -2x - 4$

c. $y = -2x + 4$

b. $y = 2x - 4$

d. $y = -\frac{1}{2}x - 4$

- _____ 26. Janell has 5 gallons of paint. After painting 800 square feet of walls in her house, she has 3 gallons left. The graph below shows Janell's situation.



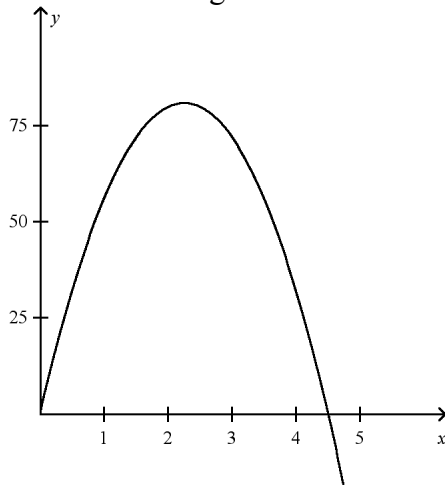
What is the equation of this linear function? What is the slope and what does it represent?

- $y = -\frac{1}{400}x + 5$; slope $= -\frac{1}{400}$; this means that for every gallon of paint used, 400 sq. ft. of area is painted.
- $y = -\frac{1}{40}x + 5$; slope $= -\frac{1}{40}$; this means that for every gallon of paint used, 40 sq. ft. of area is painted.
- $y = -\frac{1}{800}x + 5$; slope $= -\frac{1}{800}$; this means that for every gallon of paint used, 800 sq. ft. of area is painted.
- $y = -\frac{1}{4}x + 5$; slope $= -\frac{1}{400}$; this means that for every gallon of paint used, 4 sq. ft. of area is painted.

- _____ 27. Which expression is NOT equivalent to the other expressions?

- | | |
|----------------|----------------|
| a. $(4x^2y)^2$ | c. $16x^4y^2$ |
| b. $4x^4y^2$ | d. $4^2x^4y^2$ |

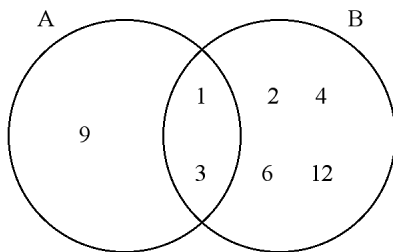
- _____ 28. The height of a ball in feet is modeled by $y = -16x^2 + 72x$, where x is the time in seconds after the ball is hit. How long is the ball in the air?



- a. 2.25 s
b. 4.5 s
c. 9 s
d. 81 s
- _____ 29. The diagram shows a Venn diagram for sets A and B . What is the intersection?

Set A: factors of 9

Set B: factors of 12



- a. $\{1\}$
b. $\{1, 3\}$
c. $\{2, 4, 6, 12\}$
d. $\{9\}$
- _____ 30. Factor $p^2 - 40$.
- a. $(p - 20)^2$
b. $(p - 20)(p + 20)$
c. $(p + 20)^2$
d. cannot be factored

____ 31. Multiply: $(a + b)(a - b)$

a. $a^2 + 2ab - b^2$

b. $a^2 + b^2$

c. $a^2 - b^2$

d. $a^2 - 2ab - b^2$

____ 32. Simplify $y^{10} \cdot y^5$.

a. y^2

b. y^5

c. y^{15}

d. y^{50}

____ 33. Solve $7(x - 2) = 7x + 14$.

a. no solution

b. 0

c. 2

d. all real numbers

____ 34. Find the slope of the line that contains the points $(1, -1)$ and $(-2, 8)$.

a. -5

b. -3

c. $-\frac{7}{3}$

d. $-\frac{1}{3}$

____ 35. For $f(x) = 24 - 2x$, find $f(2)$ and find x such that $f(x) = 10$.

a. 28; 12

b. 22; 4

c. 20; 7

d. 22; 7

____ 36. If you graph $y = x^2 - 6x + 9$, the y -intercept of the graph of the equation is _____.

a. -3

b. 9

c. 2

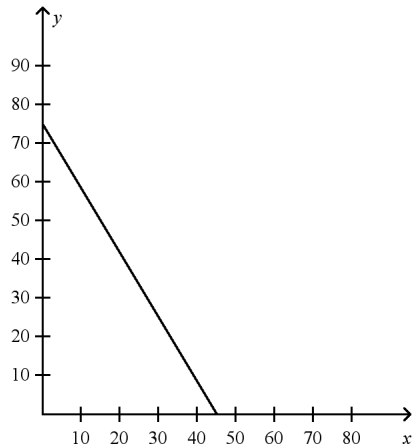
d. 0

- _____ 37. Reserved tickets for the football game cost \$20 each and general admission tickets cost \$12 each. The total ticket sales brought in \$900. The equation below can be used to find out how many of each type of ticket were sold, where x is the number of reserved tickets and y is the number of general admission tickets.

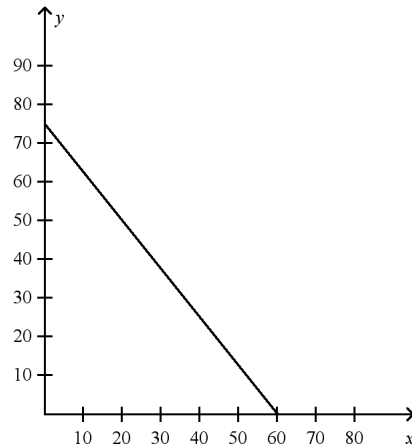
$$20x + 12y = 900$$

Which of the following graphs shows the graph of this equation?

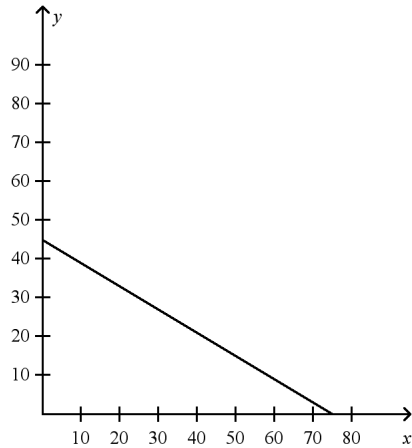
a.



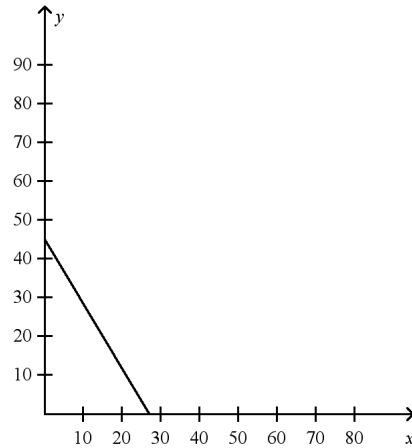
c.



b.



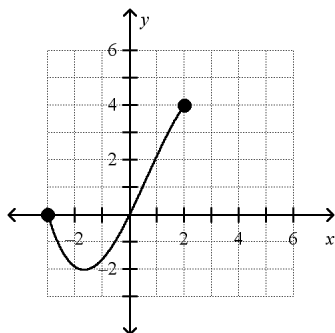
d.



Name: _____

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_____ 38. Give the domain and range of the relation.



a. D: $-2 \leq x \leq 4$; R: $-3 \leq y \leq 2$

b. D: $-3 \leq x \leq 2$; R: $-2 \leq y \leq 4$

c. D: $-3 \leq x \leq 2$ R: $-3 \leq y \leq 6$

d. D: $-3 \leq x \leq 2$; R: $0 \leq y \leq 4$

_____ 39. Solve $x^2 - 7x - 8 = 0$ by factoring.

a. $x = -1$ or $x = 8$

b. $x = 1$ or $x = -8$

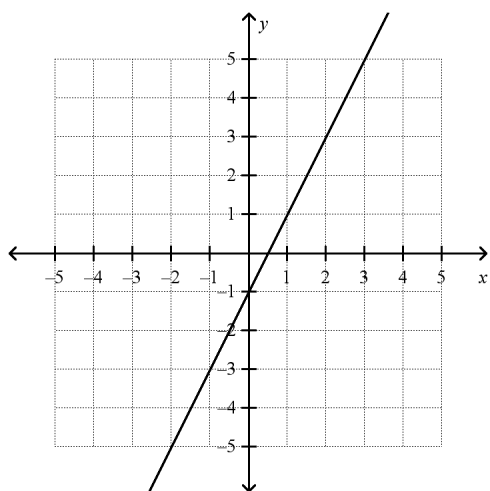
c. $x = -3$ or $x = 8$

d. $x = -3$ or $x = 8$

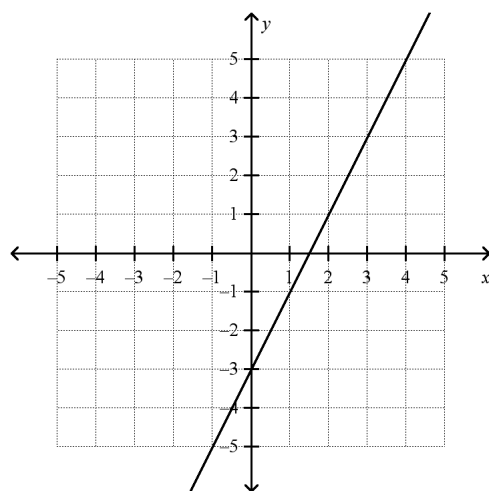
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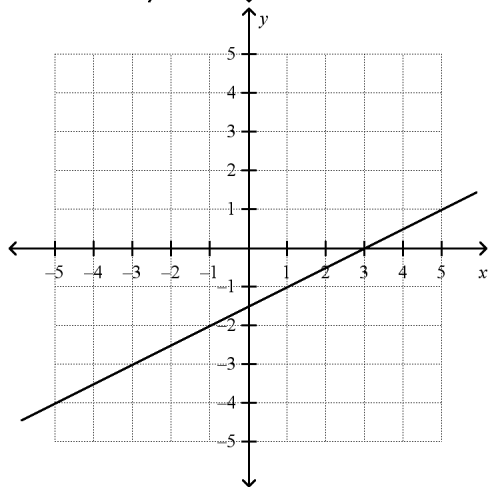
- _____ 40. Which of the following graphs shows the graph of this equation?
 $y + 1 = 2(x - 1)$



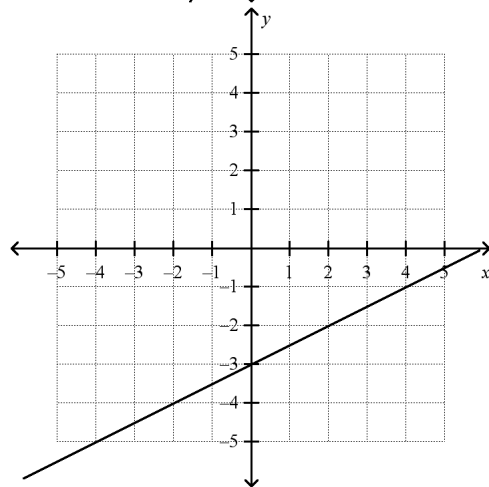
a.



c.

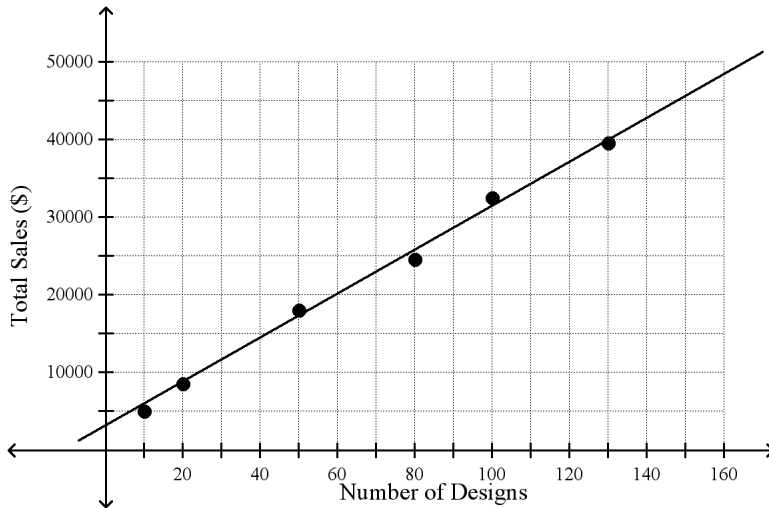


b.



d.

- _____ 41. The scatter plot shows the relationship between the weekly total sales (\$) and the number of different rug designs a rug store has. Based on this relationship, use the line of best fit to predict what the total sales will be when the store has 110 different rug designs.



- a. \$31,000 c. \$38,000
- b. \$0 d. \$35,000

c. \$38,000

b. \$0

d. \$35,000

- _____ 42. Factor $x^2 - 16$.

- a. $(x - 4)^2$
b. $(x + 4)(x - 4)$

b. $(x + 4)(x - 4)$

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

d. cannot be factored

43. Factor $x^2 - 6x - 16$.

- a. $(x + 2)(x - 8)$
b. $(x - 8)(x - 2)$

b. $(x - 8)(x - 2)$

- c. $(x - 4)(x - 2)$
d. cannot be factored

d. cannot be factored

- _____ 44. Solve $A = \frac{1}{2}(b + c)h$ for c .

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

b. $c = 2Ah - b$

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

d. $c = 2h(A - b)$

_____ 45. The ratio of boys to girls in a class is 2:3. If there are 18 girls in the class, how many boys are there?

- a. 6
- b. 10
- c. 12
- d. 27

_____ 46. Solve $\begin{cases} 2x + 3y = 4 \\ 3x - 3y = -9 \end{cases}$.

- a. (2, 0)
- b. (-1, 2)
- c. (1, -2)
- d. (-5, 2)

_____ 47. Use the zero product property to solve the equation $(x + 3)(x - 2) = 14$.

- a. The solutions are 5 and -4.
- b. The solutions are -3 and 2.
- c. The solutions are -5 and 4.
- d. The solutions are 3 and -2.

_____ 48. Divide: $(18x^3 + 9x^2) \div (3x)$

- a. $6x^2 + 3$
- b. $6x^2 + 3x$
- c. $3x^2 + 3x$
- d. $6x^3 + 3x$

_____ 49. Which of the following is the solution to this inequality?

$$3(5 + 2n) \geq 7 + 10n$$

- a. $n \geq 2$
- b. $n \geq -2$
- c. $n \leq 2$
- d. $n \leq -2$

_____ 50. Multiply $(x + 7)(x - 7)$.

- a. $x^2 - 49$
- b. $x^2 + 14x - 49$
- c. $2x - 14$
- d. $x^2 + 49$

_____ 51. U is the set of natural numbers less than 8. G is the set of even integers less than 10. Which is the complement of set G in universe U ?

- a. $\{1, 3, 5, 7\}$
- b. G
- c. $\{2, 4, 6\}$
- d. $\{1, 3, 5, 7, 8\}$

_____ 52. Simplify the quotient $\frac{\sqrt{15}}{\sqrt{2}}$.

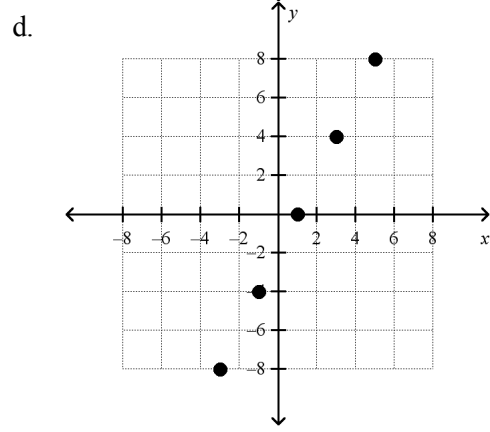
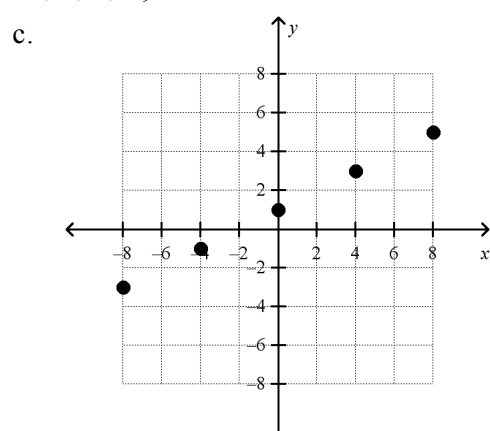
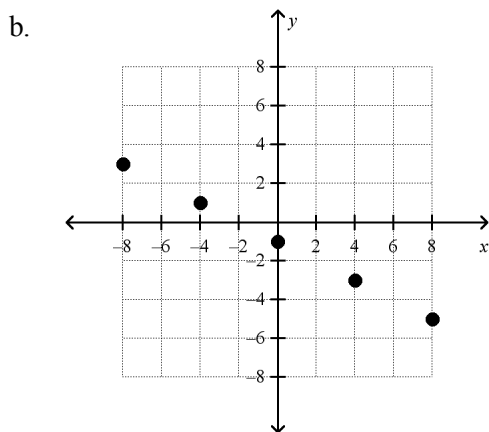
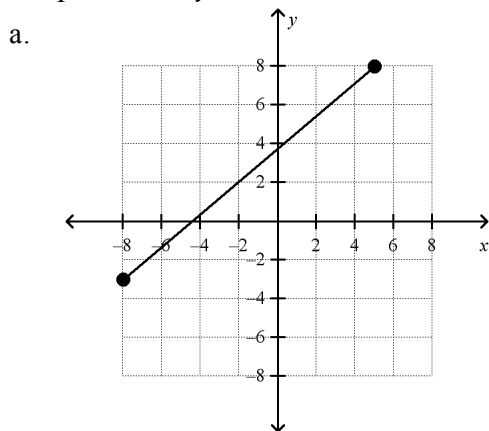
a. $\frac{\sqrt{15}}{2}$

b. $\frac{\sqrt{30}}{2}$

c. $\sqrt{7.5}$

d. $\frac{2}{\sqrt{30}}$

_____ 53. Graph $-2x + 4y = 4$ for the domain D: $\{-8, -4, 0, 4, 8\}$.



- _____ 54. 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	-3	-1	0	1	3
output	0	2	3	4	6

- a. The pairing is not a function.
- b. The pairing is a function. The rule is “input value multiplied by 2 then add 3.”
- c. The pairing is a function. The rule is “input value multiplied by 3 then add 3.”
- d. The pairing is a function. The rule is “input value plus 3.”

- _____ 55. The values in the table show a linear relationship. Find the slope.

x	-4	2	8	14
y	10	7	4	1

- a. 2
- b. -2
- c. $\frac{1}{2}$
- d. $-\frac{1}{2}$