Name: _____ **Class:** _____ **Date:** _____ **ID: A**

Algebra EOC Practice Test #1

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

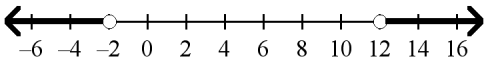
____ 1. George is helping the manager of the local produce market expand her business by distributing flyers around the neighborhood. He gets paid \$20 a day as well as \$0.05 for every flyer he distributes. George would like to earn at least \$65 each day. Which of the following represents this situation,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

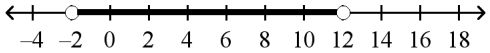
a. $20 + 0.05x \le 65$
b. $20 + 5x \le 65$
c. $20 + 0.05x \ge 65$
d. $20 + 5x \ge 65$

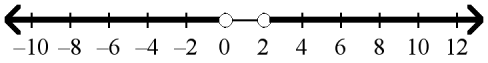
____ 2. Divide $(16x^6 - 12x^4 + 4x^2)$ by $4x^2$.

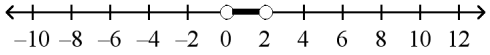
a. $4x^3 - 3x^2 + 1$
b. $4x^4 - 3x^2$
c. $4x^4 - 3x^2 + 1$
d. $12x^4 - 8x^2 + 0$

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

a. 

c. 

b. 

d. 

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

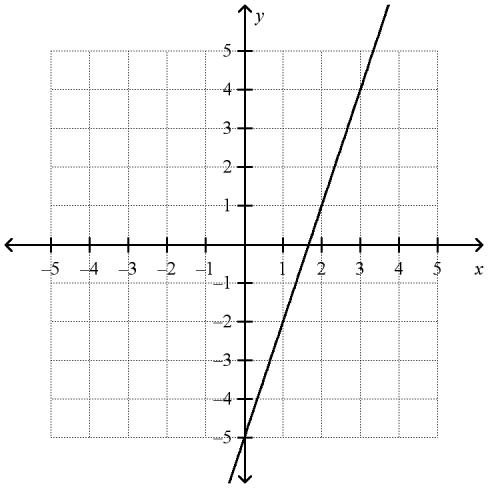
____ 5. Solve $\frac{4}{s} = \frac{-2}{9}$.

a. -4.5
b. -18
c. 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
b. at least 84
c. at least 88
d. at least 92

____ 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. $m \leq 6$

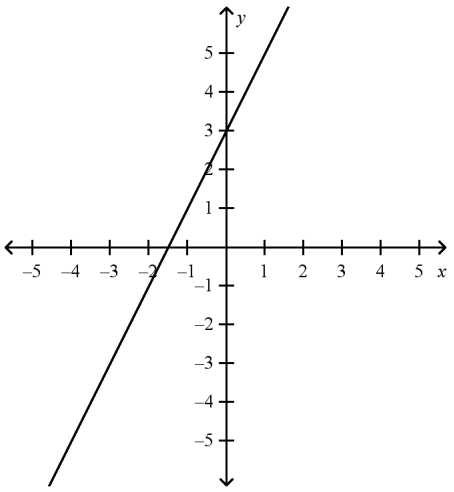
b. $m \geq 6$

c. $m \leq 22$

d. $m \geq 22$

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

a.



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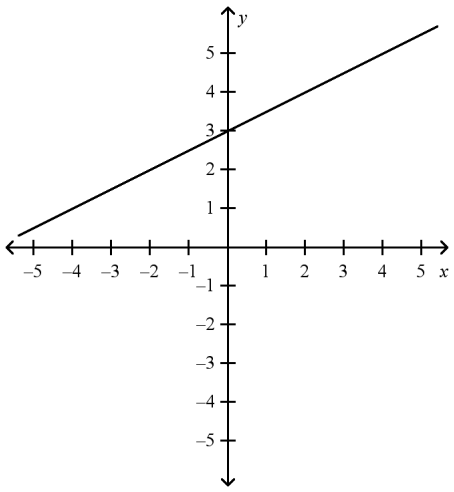
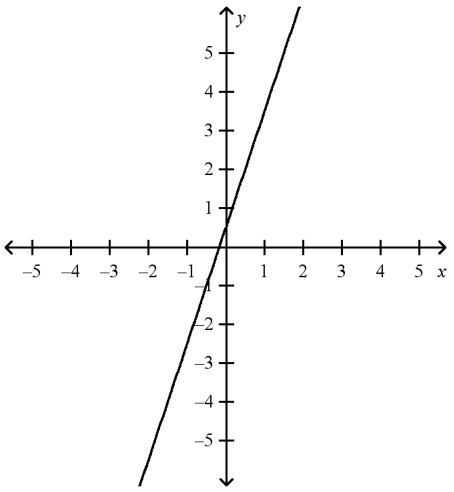
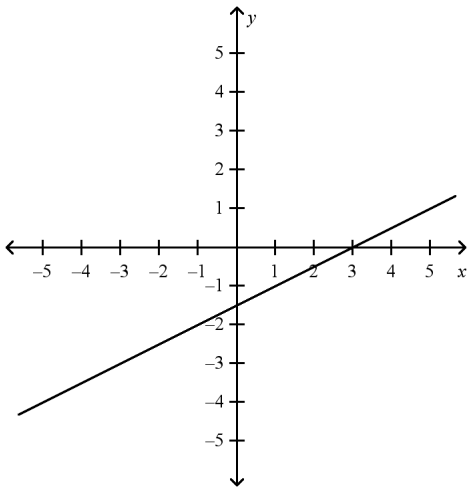


b.



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 $(a^3 b)^2$.

a. $a^3 b^2$
b. $a^6 b$
c. $a^6 b^2$
d. $a^9 b^2$

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

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

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

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

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. $I = Vr$

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

c. $V = Ir$

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

____ 14. Which system has no solution?

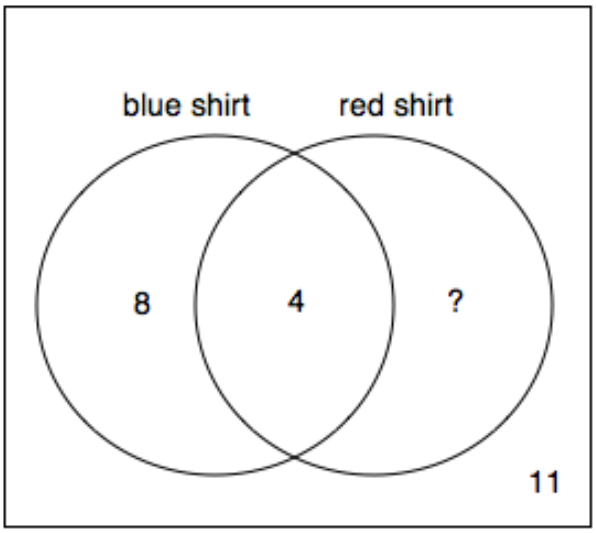
a. $\begin{cases} y = x + 4 \\ y - x = -4 \end{cases}$

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

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

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

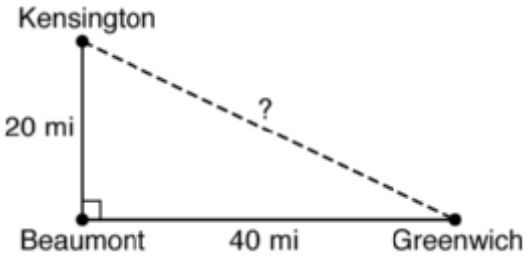
____ 15. 30 people were asked if they wore a blue shirt or a red shirt this week. The Venn diagram shows the results of the survey.



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

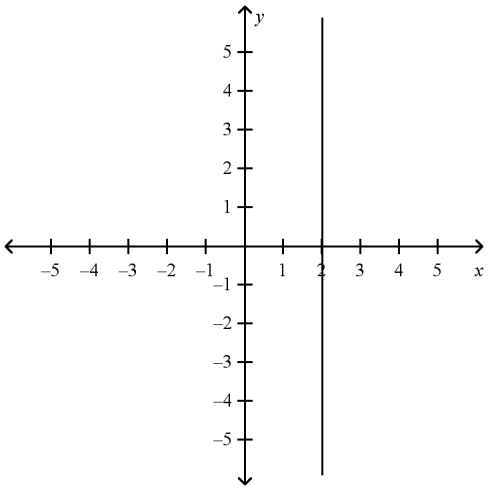
____ 20. Gloria earns 1.5 times her normal hourly pay for each hour that she works over 40 hours in a week. Her normal pay is p dollars per hour. Last week Gloria worked 47 hours and earned $489.85. The following equation represents this situation where p is Gloria's normal hourly pay in dollars per 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 = {letters of the alphabet}. If $A \cap B$ = {b, d}, which could be set B?

a. B = {b, d, g}
b. B = {b, d, k}
c. B = {b, d, 5, e}
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
b. 9
c. 12
d. 18

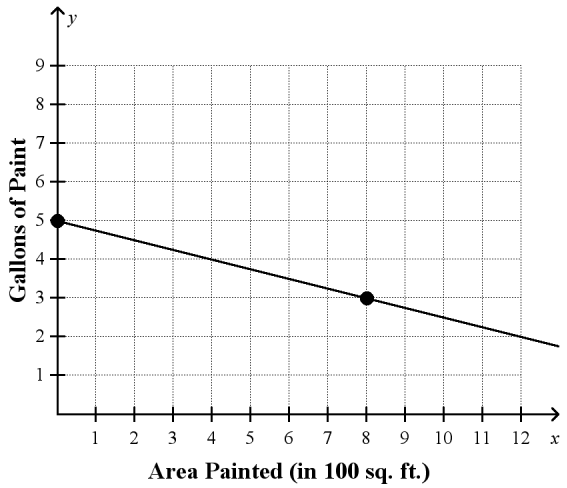
____ 24. Subtract $(6a^2 + 3a) - (4a^2 + 2a)$.

a. $2a^2 + a$
b. $2a^2 + 5a$
c. 3
d. $3a^3$

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

a. $y = -2x - 4$
b. $y = 2x - 4$
c. $y = -2x + 4$
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 show's Janell's situation.



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

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

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

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

d. $y = -\frac{1}{4}x + 5$; 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?

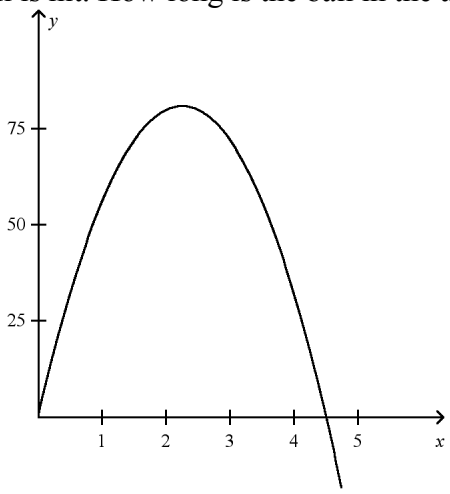
a. $(4x^2y)^2$

b. $4x^4y^2$

c. $16x^4y^2$

d. $4^2x^4y^2$

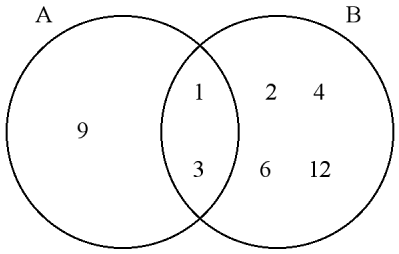
____ 28. The height of a ball in feet is modeled by $y = -16x^2 + 72x$, where x is the time in seconds after the ball is hit. How long is the ball in the air?



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 $y^{10} \bullet y^5$.

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 _____.

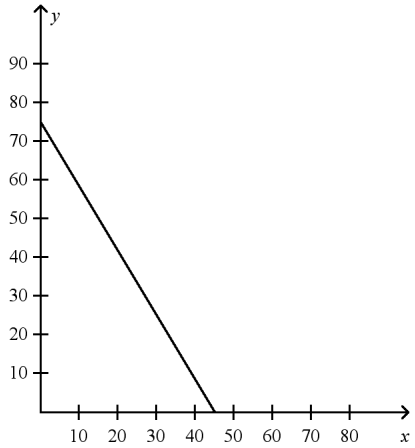
a. -3
b. 9
c. 2
d. 0

____ 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.

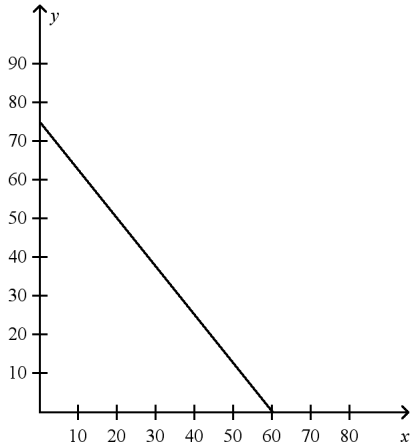
$$20x + 12y = 900$$

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

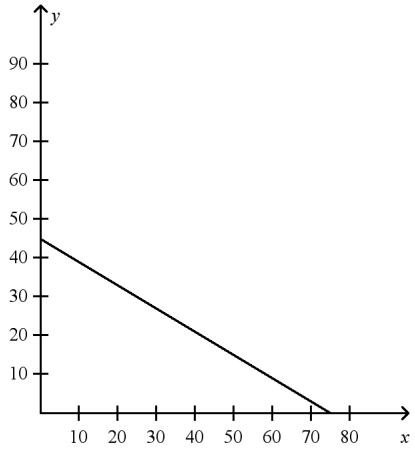
a.



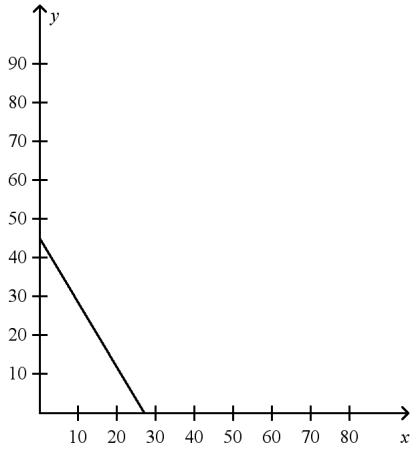
c.



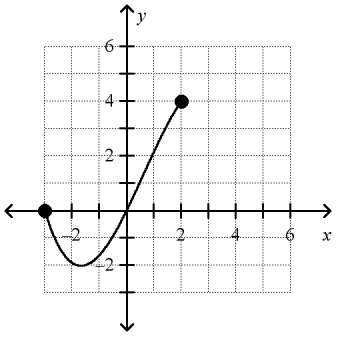
b.



d.



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



a. D: $-2 \le x \le 4$; R: $-3 \le y \le 2$
b. D: $-3 \le x \le 2$; R: $-2 \le y \le 4$
c. D: $-3 \le x \le 2$ R: $-3 \le y \le 6$
d. D: $-3 \le x \le 2$; R: $0 \le y \le 4$

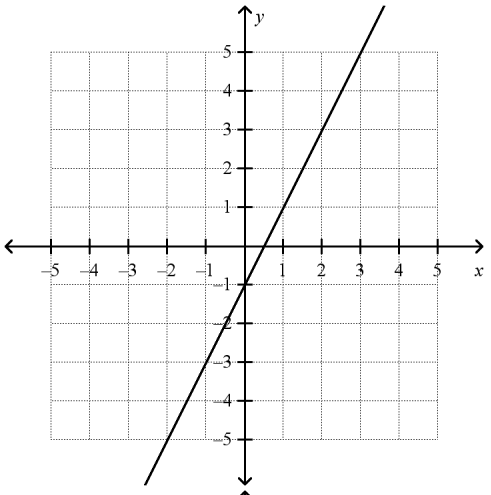
____ 39. Solve $x^2 - 7x - 8 = 0$ by factoring.

a. $x = -1$ or $x = 8$
b. $x = 1$ or $x = -8$
c. $x = -3$ or $x = 8$
d. $x = -3$ or $x = 8$

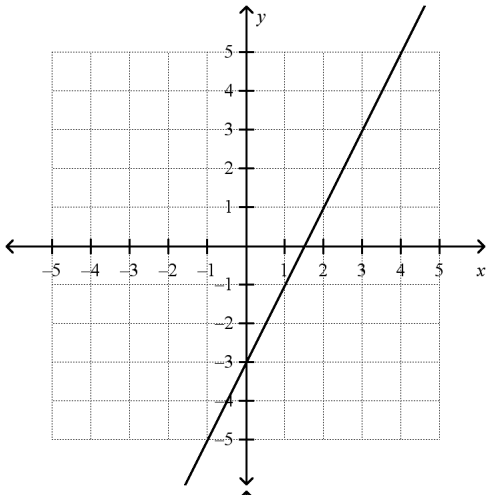
____ 40. Which of the following graphs shows the graph of this equation?

$y + 1 = 2(x - 1)$

a.



c.



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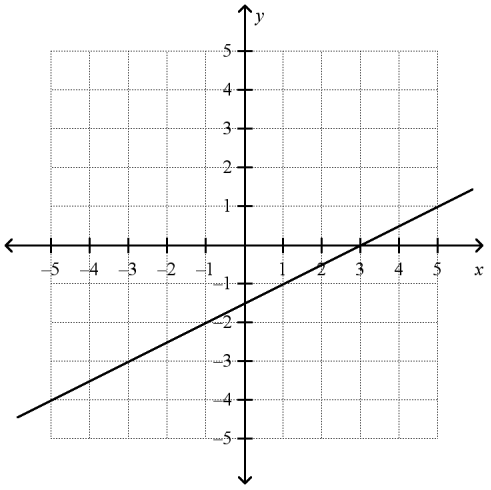
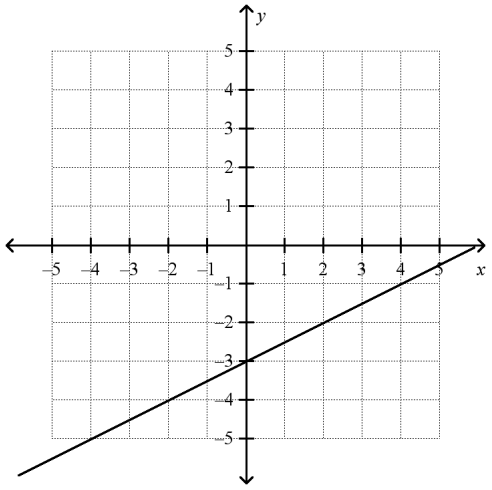
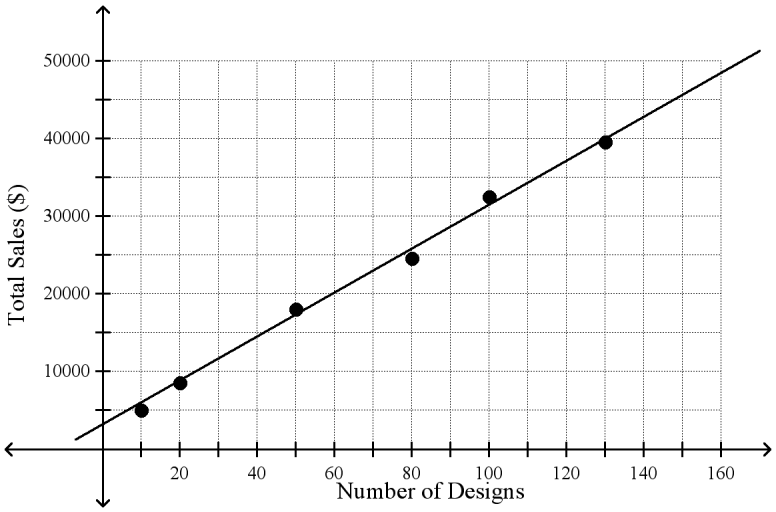


d.



____ 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

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

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

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

a. $(x + 2)(x - 8)$
c. $(x - 4)(x - 2)$
b. $(x - 8)(x - 2)$
d. cannot be factored

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

a. $c = \frac{h}{2A} - b$
c. $c = \frac{2A}{h} - b$
b. $c = 2Ah - b$
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. $\frac{\sqrt{15}}{2}$

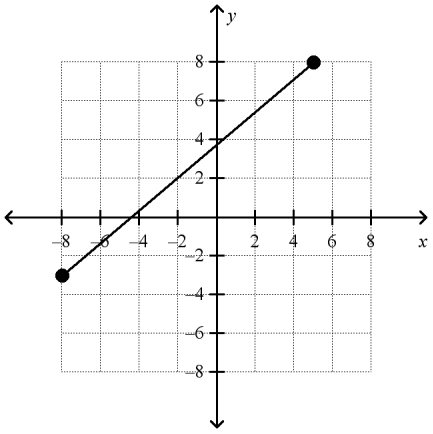
b. $\frac{\sqrt{30}}{2}$

c. $\sqrt{7.5}$

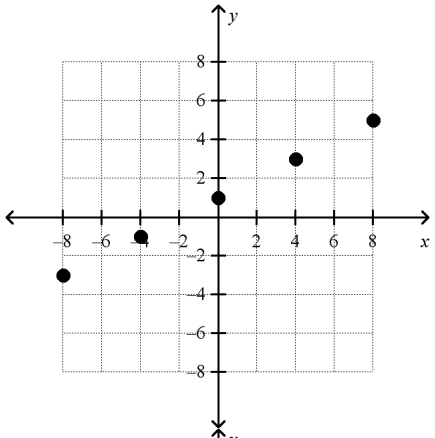
d. $\frac{2}{\sqrt{30}}$

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

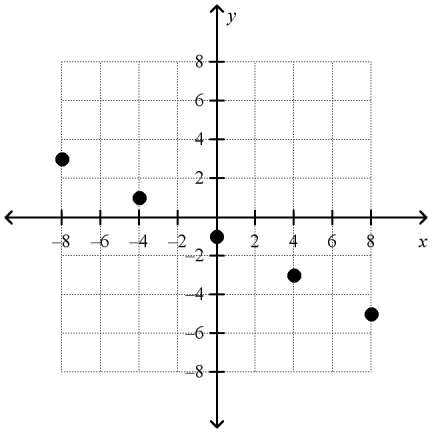
a.



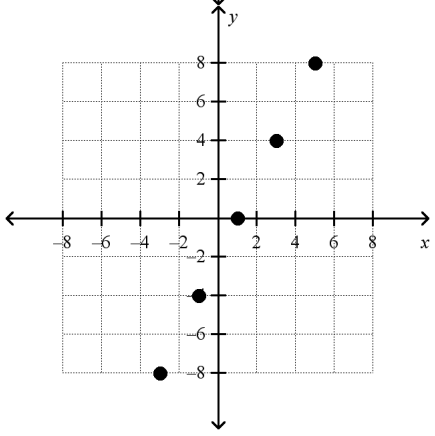
c.



b.



d.



____ 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. $-\frac{1}{2}$