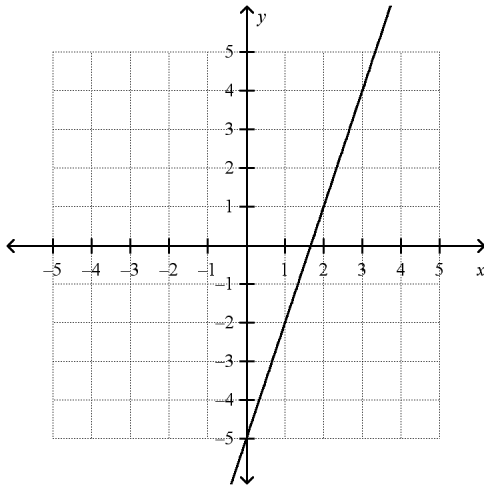


Name: _____

ID: A

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



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

c. $y = 3x - 5$

b. $y = -3x - 5$

d. $y = 2x - 5$

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

a. $m \leq 6$

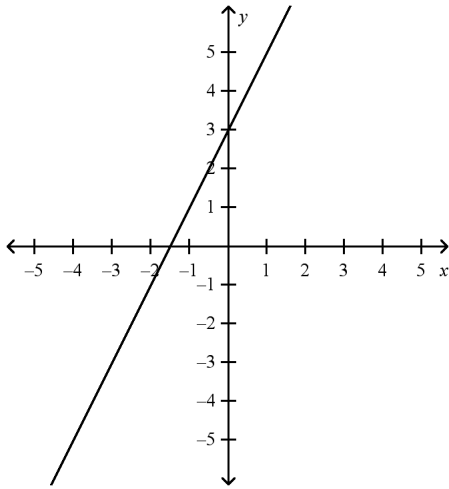
c. $m \leq 22$

b. $m \geq 6$

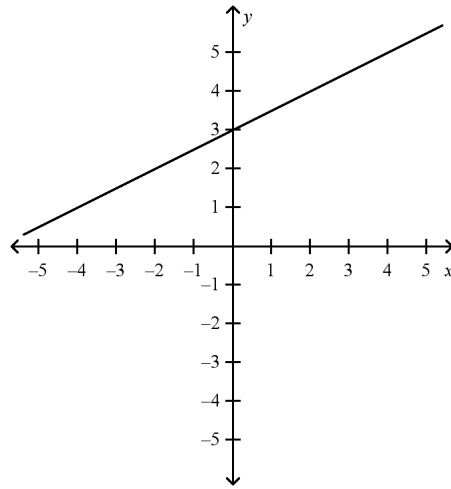
d. $m \geq 22$

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

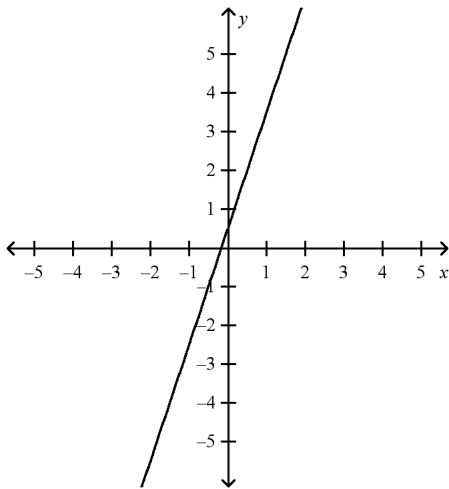
a.



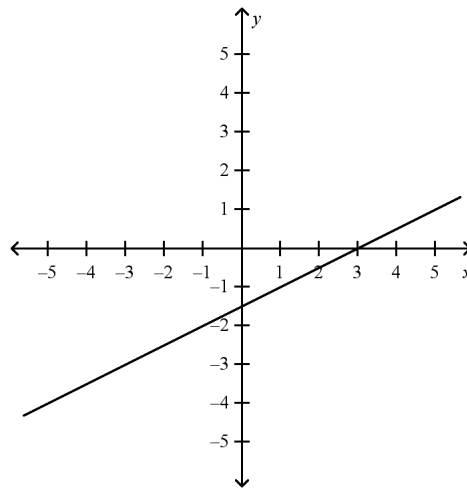
c.



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 $(a^3 b)^2$.

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

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?

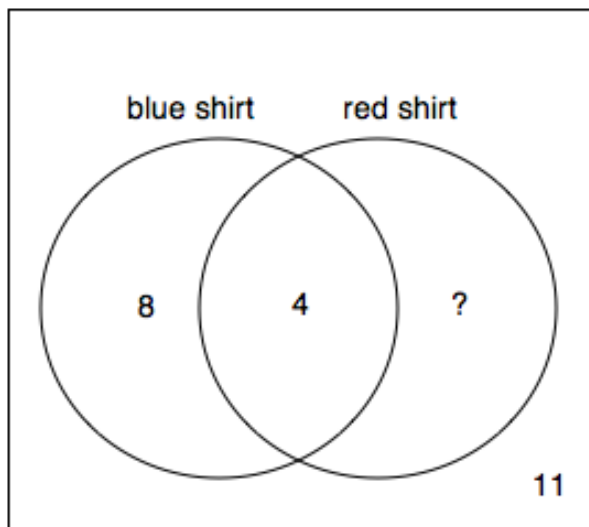
a.
$$\begin{cases} y = x + 4 \\ y - x = -4 \end{cases}$$

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

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

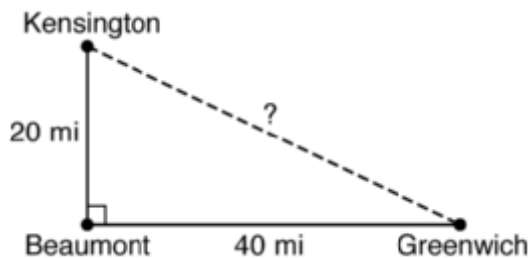
d.
$$\begin{cases} y = 4x + 1 \\ y - 1 = 4x \end{cases}$$

- _____ 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?

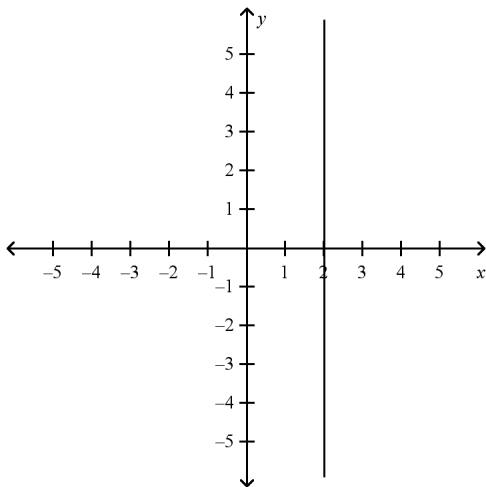
a. \$5.90

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 ?

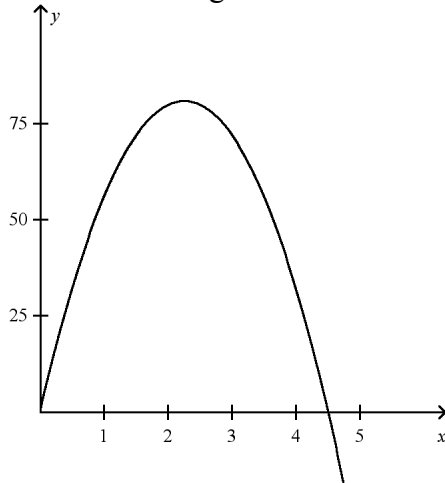
a. $y = -2x - 4$

c. $y = -2x + 4$

b. $y = 2x - 4$

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

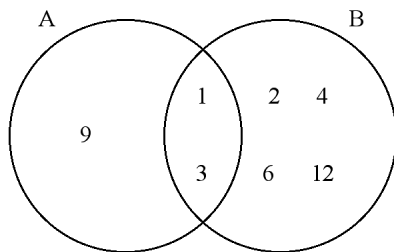
- _____ 28. The height of a ball in feet is modeled by $y = -16x^2 + 72x$, where x is the time in seconds after the ball is hit. How long is the ball in the air?



- 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

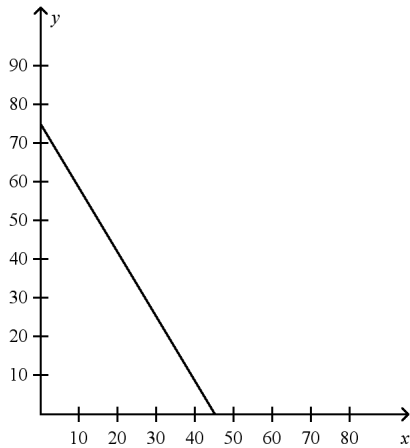
d. 0

- _____ 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.

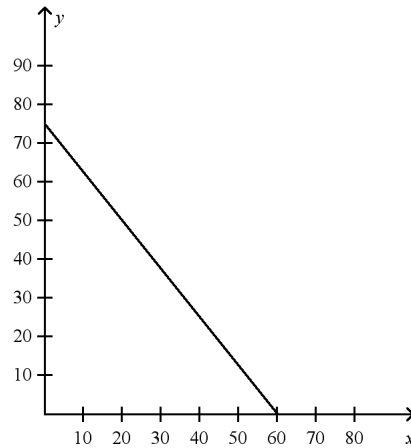
$$20x + 12y = 900$$

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

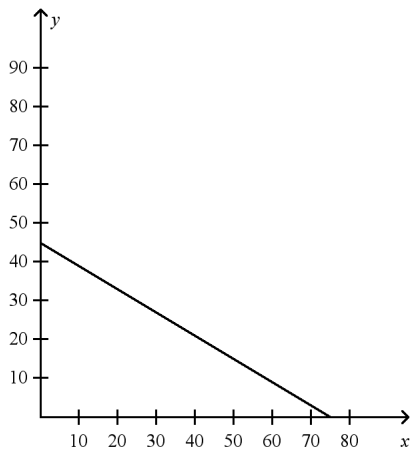
a.



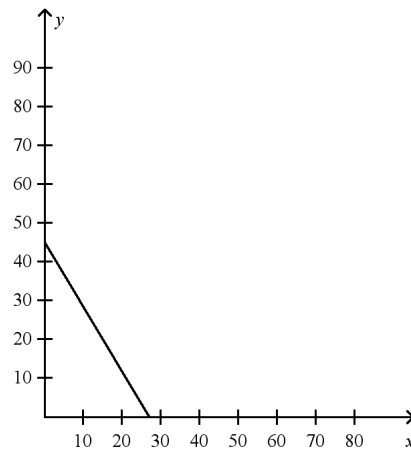
c.



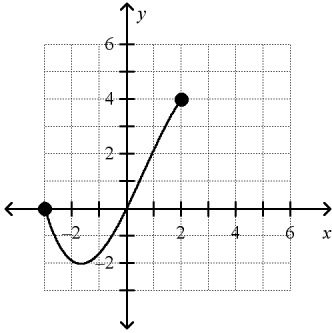
b.



d.



_____ 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.

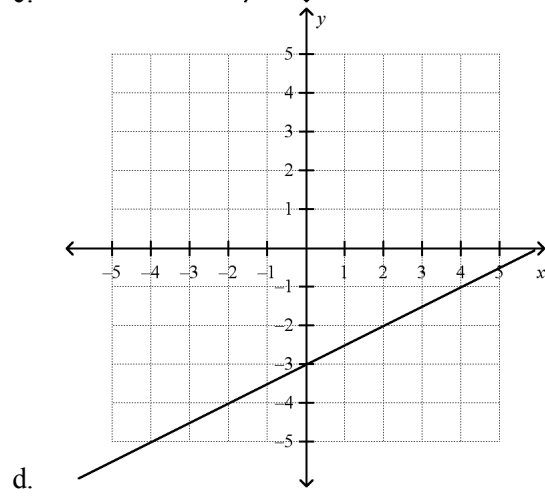
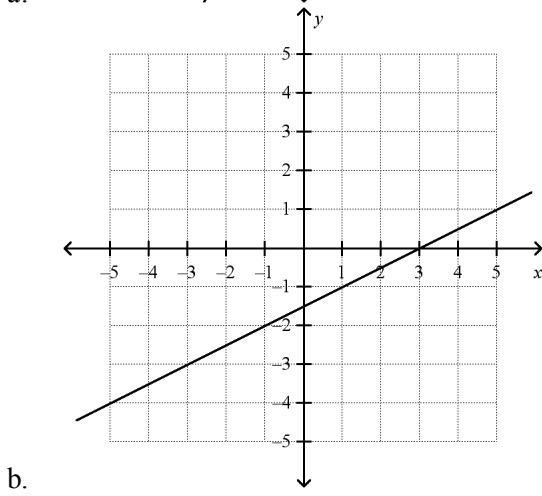
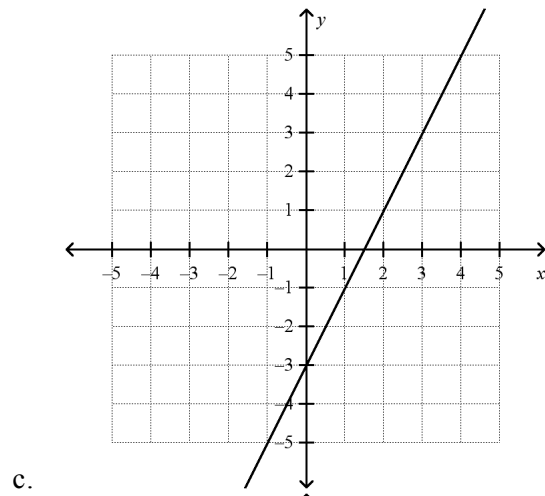
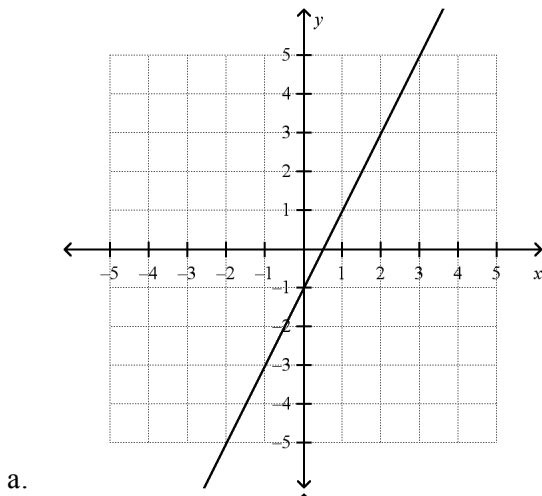
a. $x = -1$ or $x = 8$

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

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

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

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



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

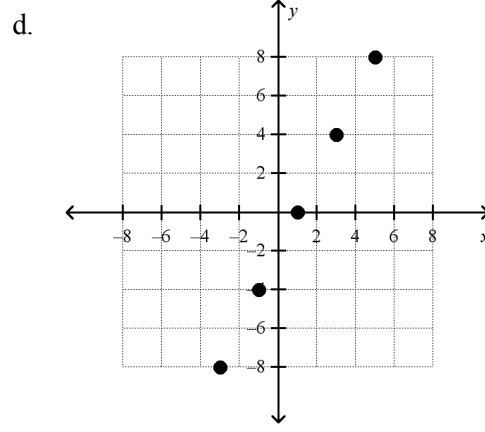
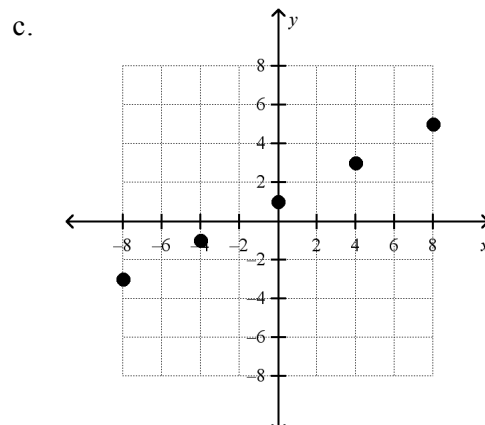
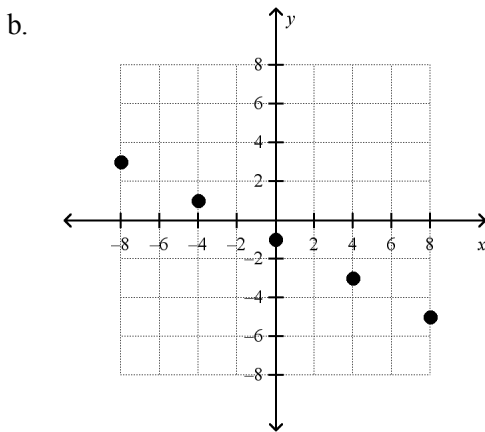
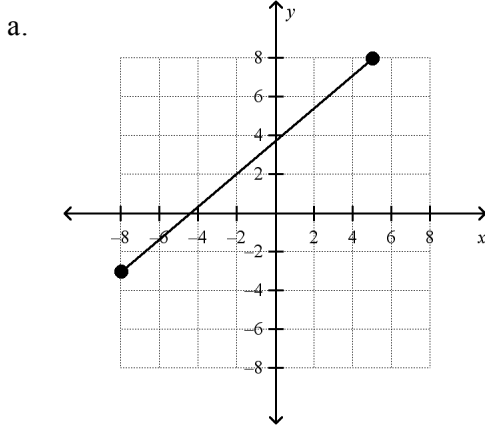
a. $\frac{\sqrt{15}}{2}$

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