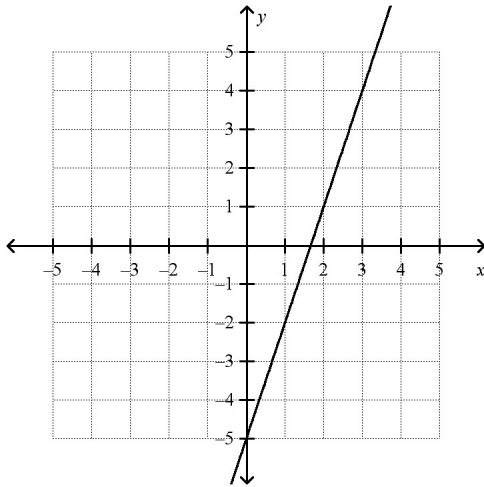




Name: \_\_\_\_\_

ID: A

\_\_\_\_\_ 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.  $m \leq 6$

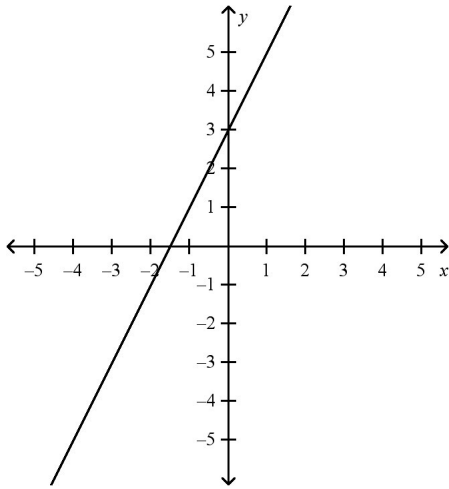
b.  $m \geq 6$

c.  $m \leq 22$

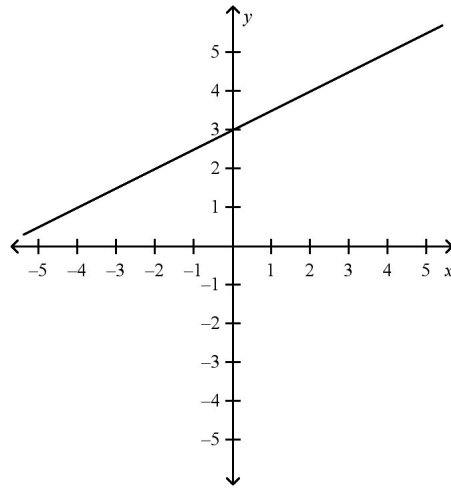
d.  $m \geq 22$

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

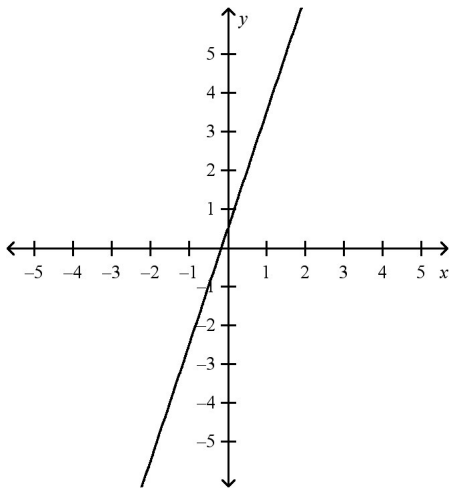
a.



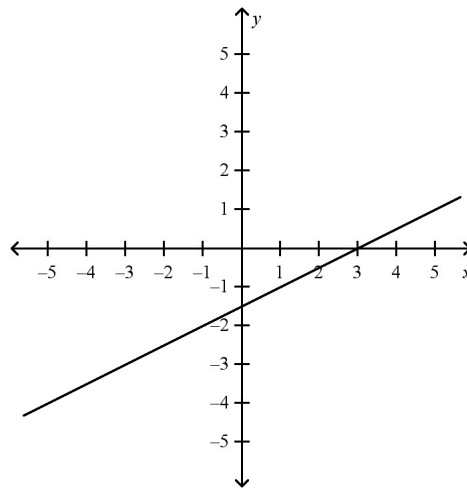
c.



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  $(a^3 b)^2$ .

- 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?

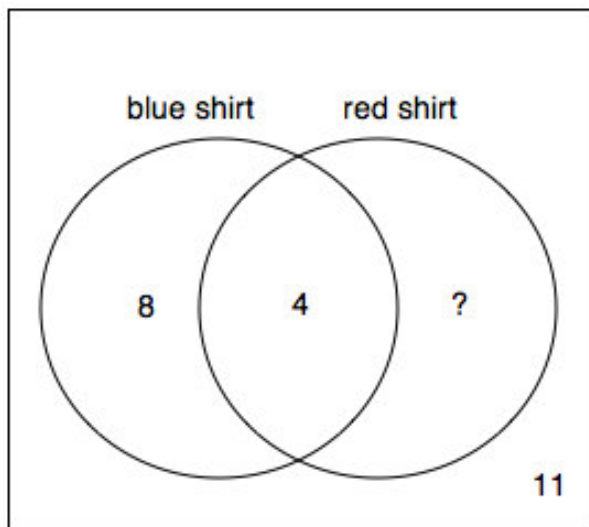
a. 
$$\begin{cases} y = x + 4 \\ y - x = -4 \end{cases}$$

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

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

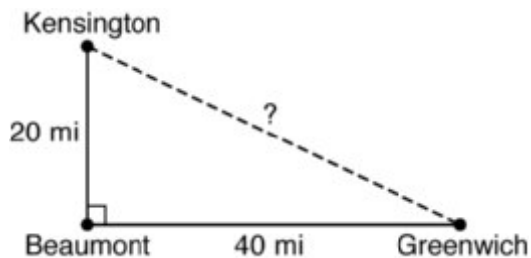
d. 
$$\begin{cases} y = 4x + 1 \\ y - 1 = 4x \end{cases}$$

- \_\_\_\_\_ 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?

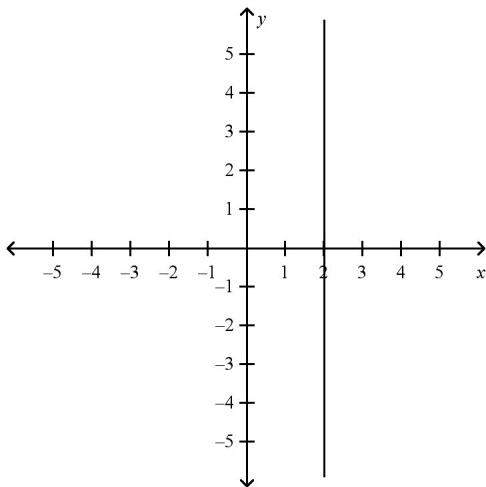
a. \$5.90

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

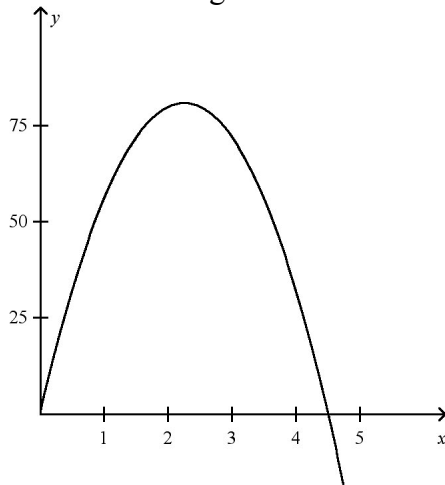
d. zero







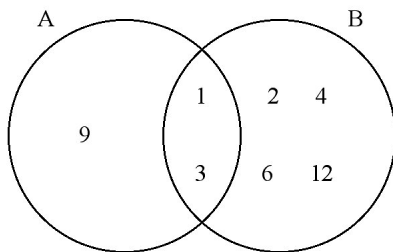
\_\_\_\_\_ 28. The height of a ball in feet is modeled by  $y = -16x^2 + 72x$ , where  $x$  is the time in seconds after the ball is hit. How long is the ball in the air?



- 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

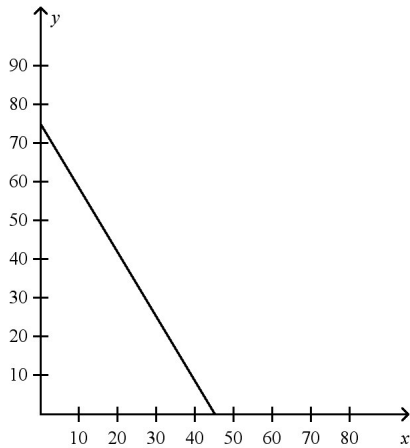
d. 0

- \_\_\_\_\_ 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.

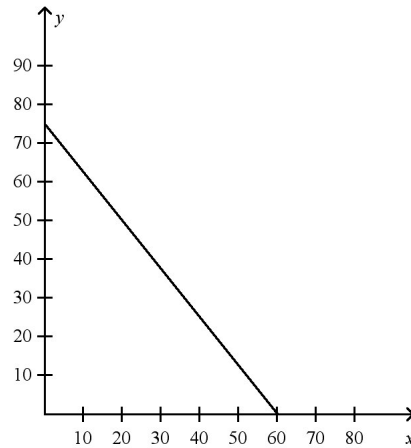
$$20x + 12y = 900$$

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

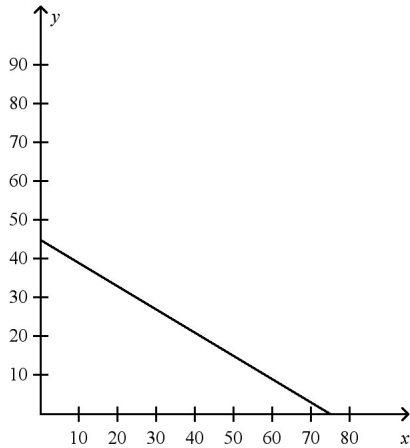
a.



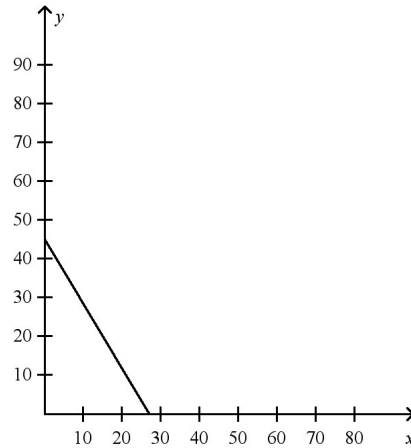
c.



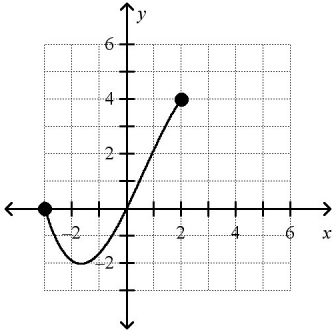
b.



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:  $-2 \leq y \leq 4$

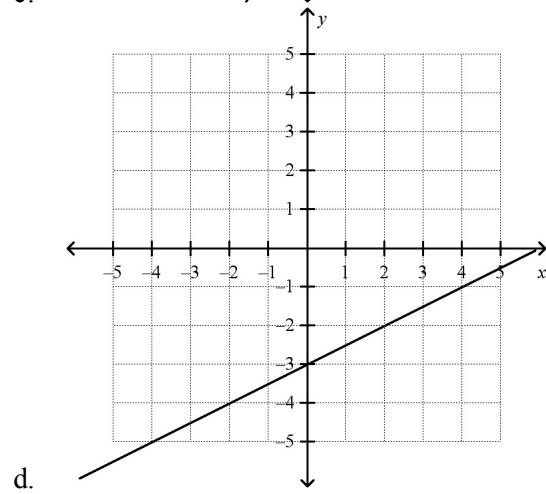
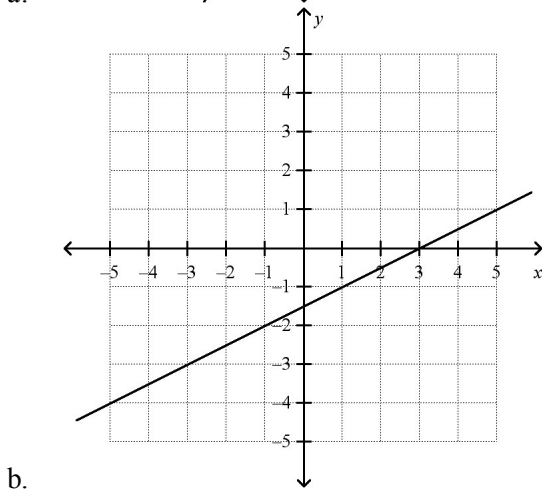
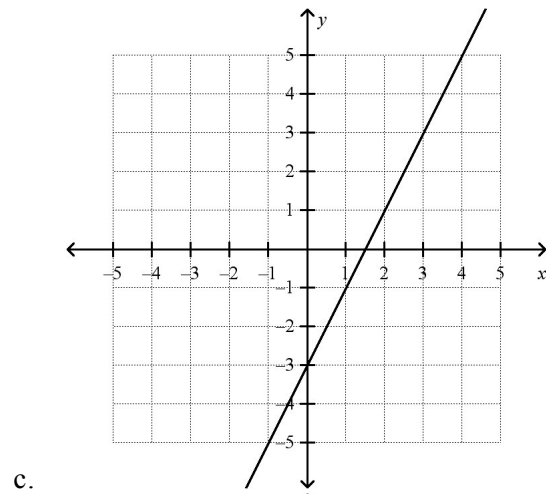
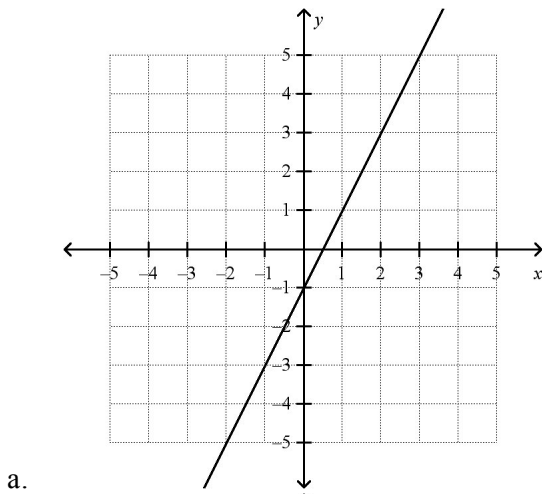
- c. D:  $-3 \leq x \leq 2$  R:  $-3 \leq y \leq 6$   
d. D:  $-3 \leq x \leq 2$  ; R:  $0 \leq y \leq 4$

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

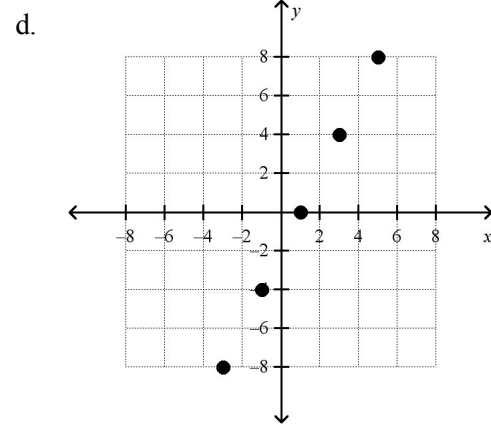
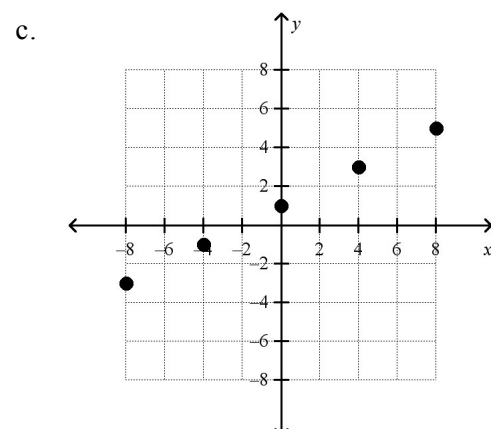
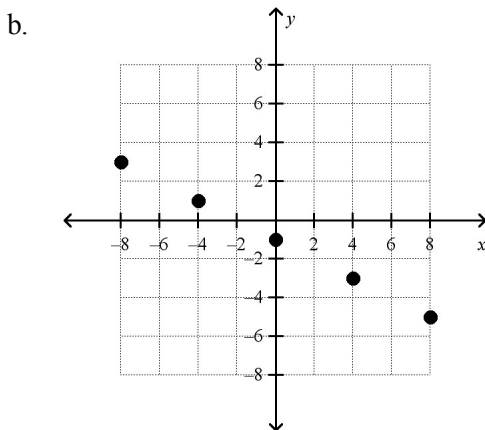
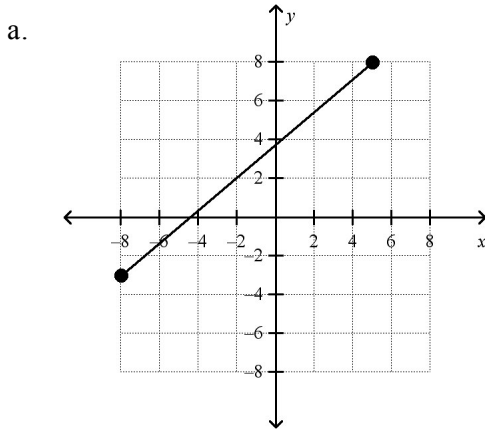
a.  $\frac{\sqrt{15}}{2}$

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