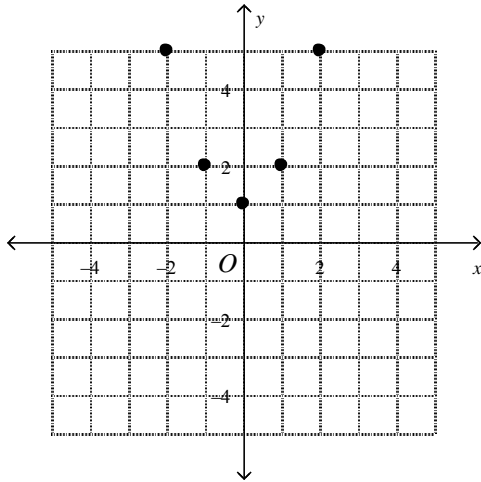


Multiple Choice

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

- _____ 1. Write the ordered pairs for the relation. Find the domain and range.

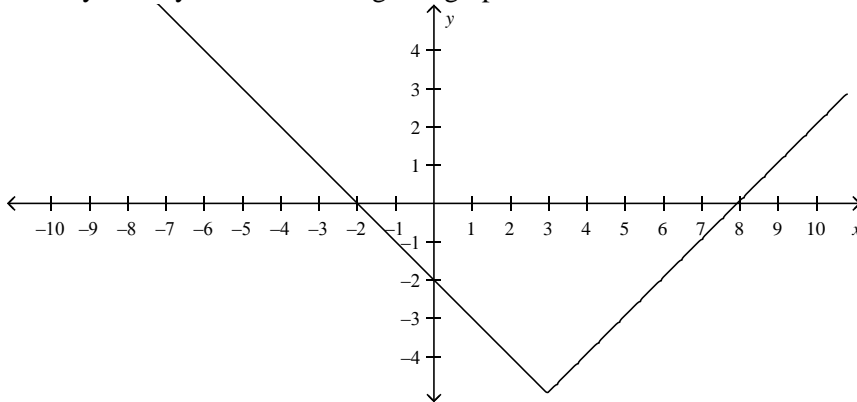


- a. $\{(5, -2), (2, -1), (1, 0), (2, 1), (5, 2)\}$; domain: $\{-2, -1, 0, 1, 2\}$; range: $\{1, 2, 5\}$
- b. $\{(-2, 5), (-1, 2), (0, 1), (1, 2), (2, 5)\}$; domain: $\{-2, -1, 0, 1, 2\}$; range: $\{1, 2, 5\}$
- c. $\{(-2, 5), (-1, 2), (0, 1), (1, 2), (2, 5)\}$; domain: $\{1, 2, 5\}$; range: $\{-2, -1, 0, 1, 2\}$
- d. $\{(5, -2), (2, -1), (1, 0), (2, 1), (5, 2)\}$; domain: $\{1, 2, 5\}$; range: $\{-2, -1, 0, 1, 2\}$

- _____ 2. For $f(x) = -2x + 6$, find $f(3)$.
- a. 12
 - b. -12
 - c. 0
 - d. 16

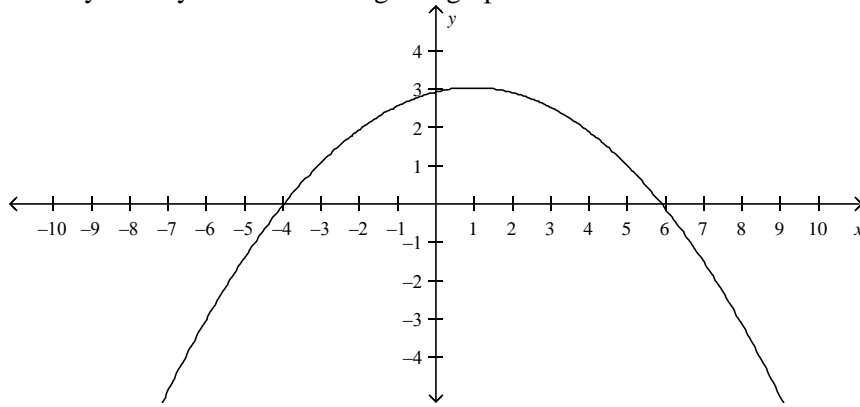
- _____ 3. Suppose $f(x) = 4x - 2$ and $g(x) = -2x + 1$. Find the value of $f(3) + g(5)$.
- a. 1
 - b. 21
 - c. 11
 - d. 14

- _____ 4. Identify the key features of the given graph.



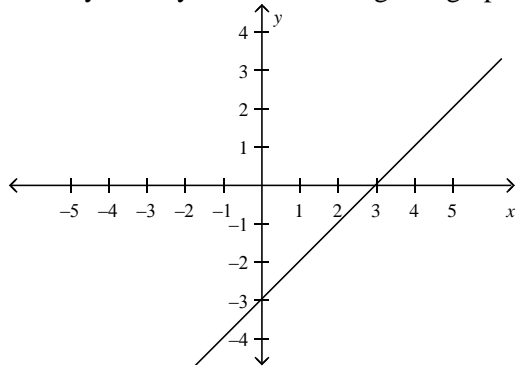
- a. increasing, minimum (3, -5); x-intercepts (-2, 0) ((8, 0), y-intercept ((0, -2)
- b. increasing, max (5, -3), x-int (0, -2) (0, 8); y-int (2, 0)
- c. decreasing, no x-intercepts, y-intercept (0,9), maximum
- d. linear function

5. Identify the key features of the given graph.



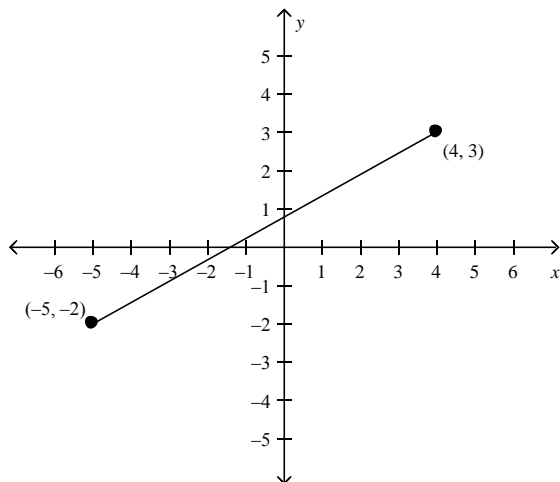
- | | |
|--|--|
| a. increasing, minimum (3, -5); x-intercepts (-2, 0) ((8, 0), y-intercept ((0, -2) | c. absolute value function |
| b. decreasing, no x-intercepts, y-intercept (0,3), maximum (1, -3) | d. decreasing; max ((1, 3); x-int (-4, 0) (6, 0); y-int (0, 2.9) |

6. Identify the key features of the given graph.



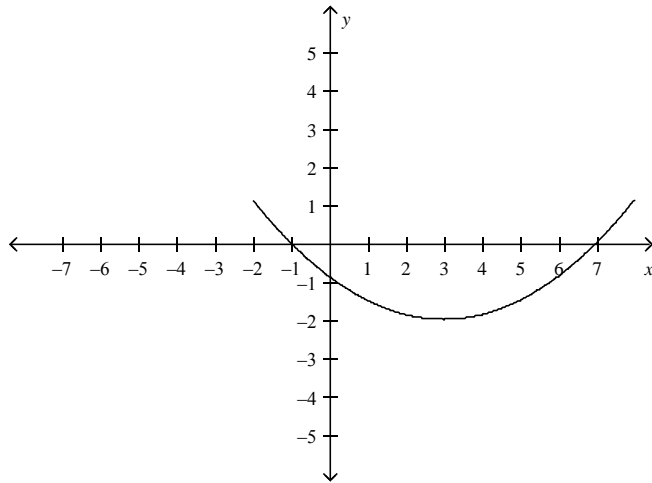
- | | |
|--|--|
| a. increasing, minimum (3, -5); x-intercepts (3,0), y-intercept ((0, -3) | c. quadratic function |
| b. increasing; no max/min; x-int (3, 0); y-int (0, -3) | d. increasing; max ((1, 3); x-int (-4, 0) (6, 0); y-int (0, 2.9) |

7. Define the domain and range for the given graph.



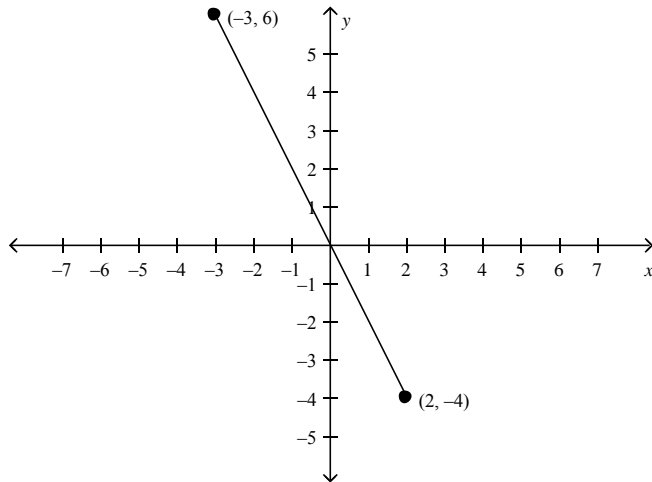
- | | |
|--|--|
| a. domain: $5 \leq x \leq 5$
range: $-1 \leq y \leq 3$ | c. domain: $3 \leq x \leq -1$
range: $-5 \leq y \leq 4$ |
| b. domain: $-1 \leq x \leq 3$
range: $-5 \leq y \leq 4$ | d. domain: $-5 \leq x \leq 4$
range: $-2 \leq y \leq 3$ |

8. Define the domain and range for the given graph.



- | | |
|--|--|
| a. domain: $(0, 0)$
range: $(-3, 2)$ | c. domain: $-2 \leq x \leq 8$
range: $-2 \leq y \leq 1$ |
| b. domain: $-3 \leq y \leq 2$
range: $-5 \leq x \leq 2$ | d. domain: $-3 \leq x \leq 2$
range: $-4 \leq y \leq 6$ |

9. Define the domain and range for the given graph.



- | | |
|--|--|
| a. domain: $-6 \leq x \leq 6$
range: $-3 \leq y \leq 3$ | c. domain: $(0, 0)$
range: $(-3, 2)$ |
| b. domain: $-3 \leq x \leq 2$
range: $-4 \leq y \leq 6$ | d. domain: $-3 \leq y \leq 4$
range: $-5 \leq x \leq 2$ |

10. How will the graph of $y = |x - 3|$ look different from $y = |x|$?

- | | |
|-------------------------|------------------------|
| a. slides right 3 units | c. opens down |
| b. shifts down 3 units | d. slides left 3 units |

11. How will the graph of $y = \sqrt{x} - 5$ look different from $y = \sqrt{x}$?

- | | |
|-------------------------|------------------------|
| a. opens down | c. shifts up 5 units |
| b. slides right 5 units | d. shifts down 5 units |

12. How will the graph of $y = -x^2$ look different from $y = x^2$?

- | | |
|------------------------|---------------------------|
| a. slides down 2 units | c. appears to be wider |
| b. appears more narrow | d. reflects across x-axis |

_____ 13. How will the graph of $y = \frac{1}{3}x$ look different from $y = x$?

- a. reflects across x-axis
- b. steeper, faster rate
- c. slides right 3
- d. flatter, slower rate

_____ 14. Which of the following is the inverse of $y = 3x + 21$

- a. $y = \frac{1}{7}x + 3$
- b. $y = \frac{x}{3} - 7$
- c. $y = 7x - 3$
- d. $y = -3x - 21$

_____ 15. Which of the following is the inverse of $y = -5x + 20$

- a. $y = 5x - 20$
- b. $y = 15x + 3$
- c. $y = -\frac{1}{5}x + 4$
- d. $y = \frac{x}{5} - 25$

_____ 16. Which of the following is the inverse of $y = x^2 - 7$

- a. $y = \sqrt{x+7}$
- b. $y = \sqrt{x} + 3.5$
- c. $y = -x^2 + 7$
- d. $y = 7x - x^2$

Matching – For each equation write the NAME of the function family to which it belongs.

- a. Absolute Value
- b. Cubic
- c. Exponential
- d. Linear
- e. Quadratic
- f. Radical
- g. Rational
- h. Step

Graph Sketch:

_____ 17. $y = 3|x| + 4$

_____ 18. $y = \sqrt{x+4}$

_____ 19. $y = \frac{15}{x}$

_____ 20. $y = 3[x] + 5$

_____ 21. $y = 2 \cdot 3^x$

_____ 22. $y = -4x + 3$

_____ 23. $y = 5x^2 - 1$

_____ 24. $y = 4x^3 - 5$

For each #17-24. Sketch the shape of the graph.

Short Answer

33. Is the relation $\{(-3, -2), (-2, -2), (5, 4), (5, 0), (-1, 5)\}$ a function? Explain.

34. Is the relation $\{(3, -5), (-5, -1), (-3, -4), (-4, 1), (0, -4)\}$ a function? Explain.

35. Describe the vertical-line test for a graph and tell how it can determine whether a graph represents a function.

