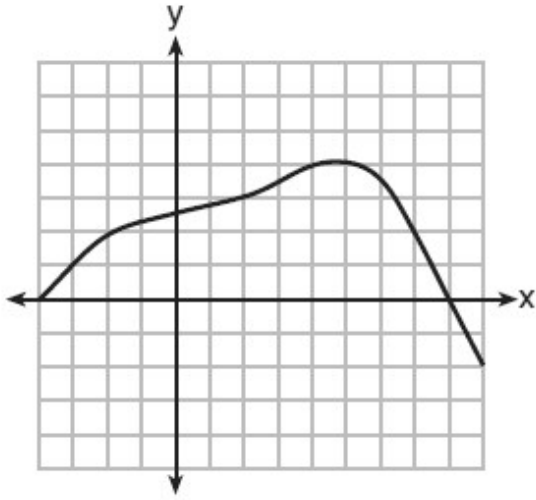


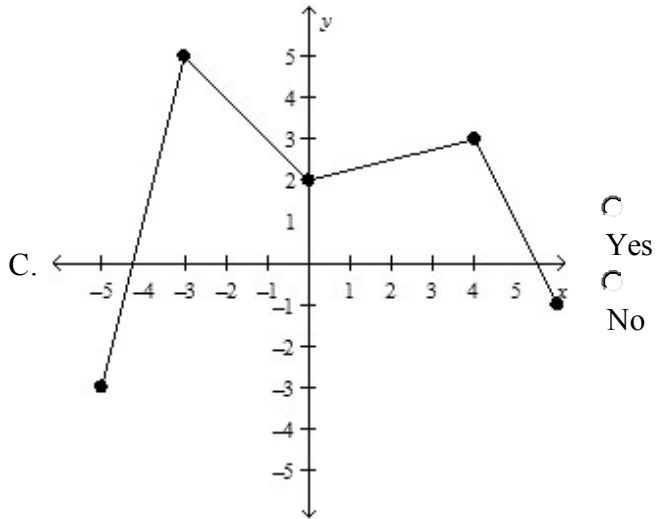
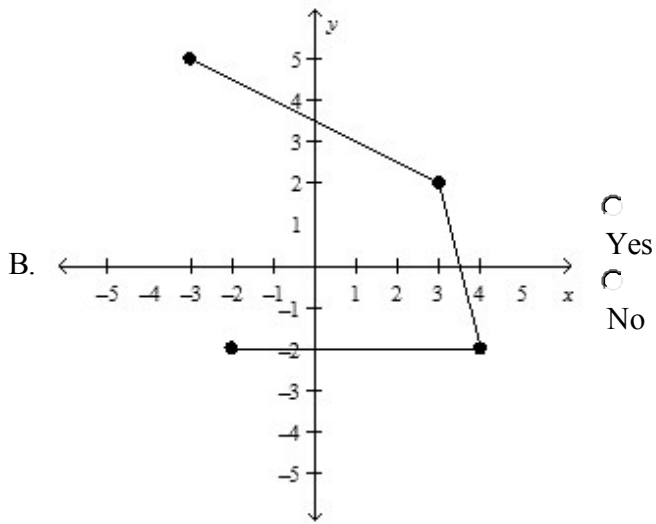
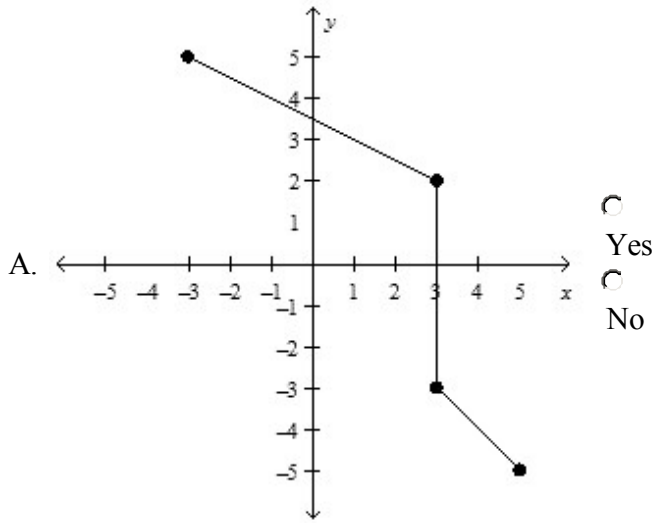
Unit 3 Review (+ Unit 8 Venn Diagrams)

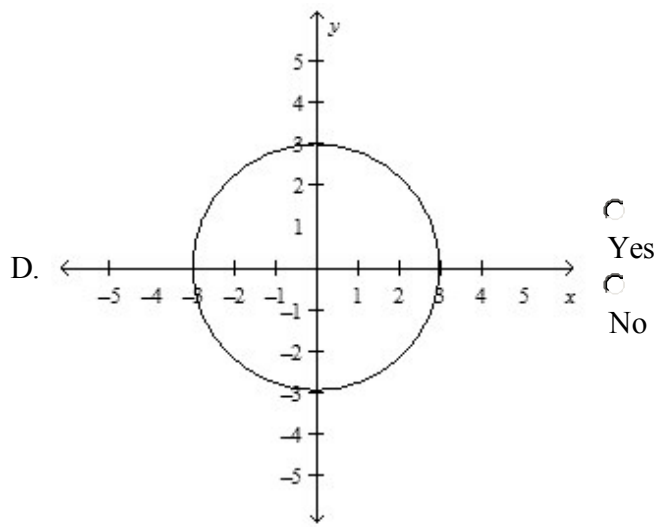
1. Which value is in the domain of the function graphed below, but is *not* in its range?



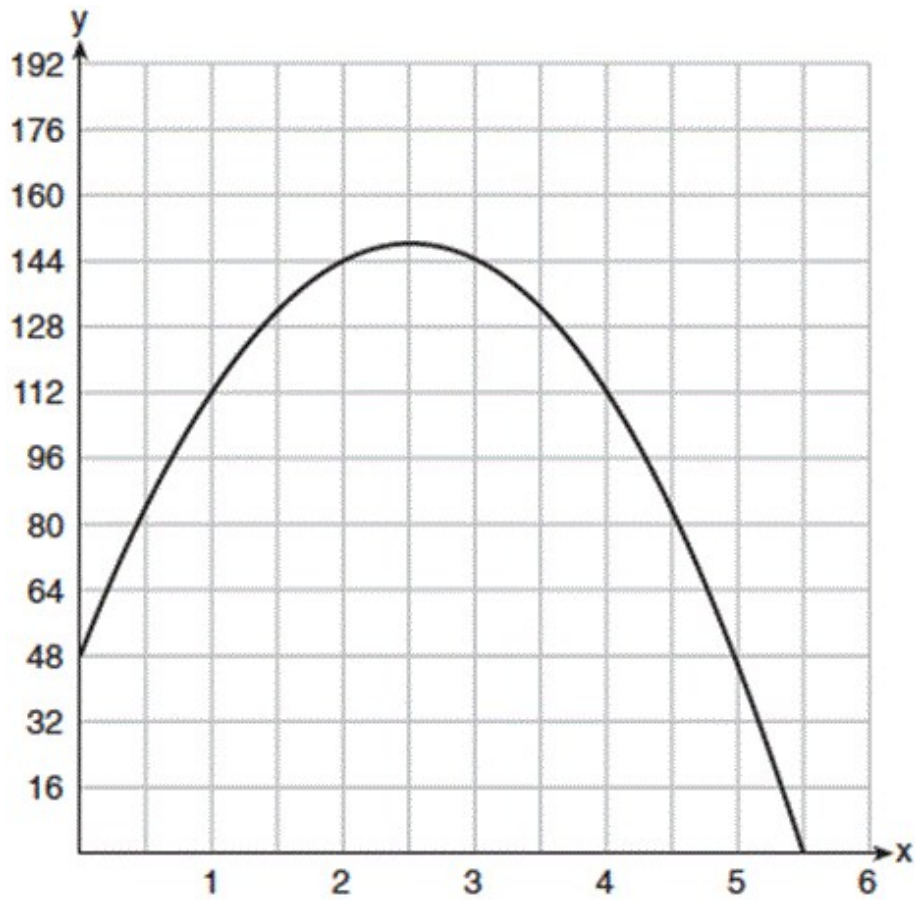
- A. 0
- B. 2
- C. 3
- D. 7

2. Determine whether each of the following represents a function or not. Select **Yes** or **No** for graphs A – D.





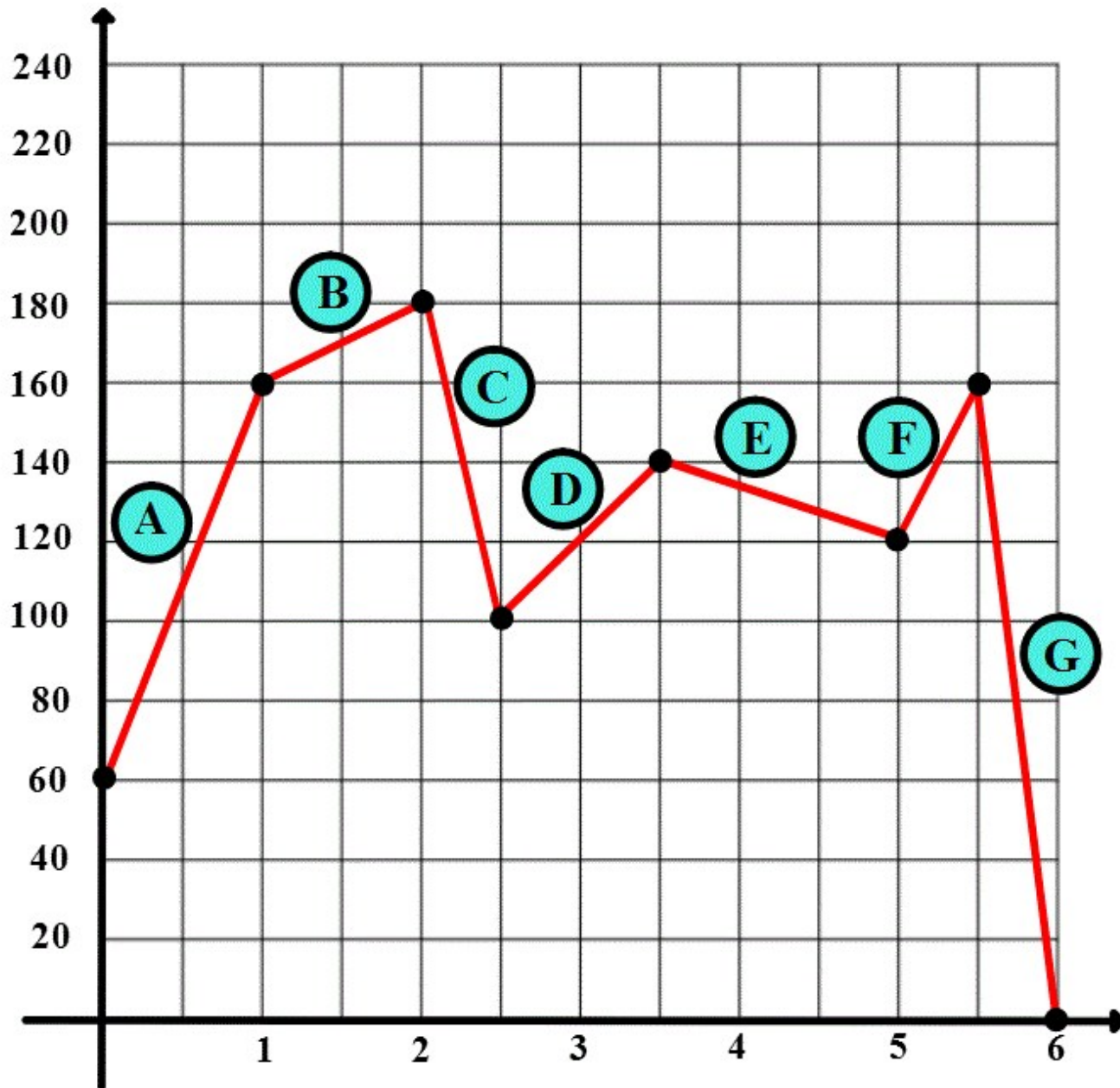
3. A ball is thrown into the air from the edge of a 48-foot-high cliff so that it eventually lands on the ground. The graph below shows the height, y , of the ball from the ground after x seconds.



For which interval is the ball's height always *decreasing*?

- A. $0 \leq x \leq 2.5$
- B. $0 < x < 5.5$
- C. $2.5 < x < 5.5$
- D. $x \geq 2$

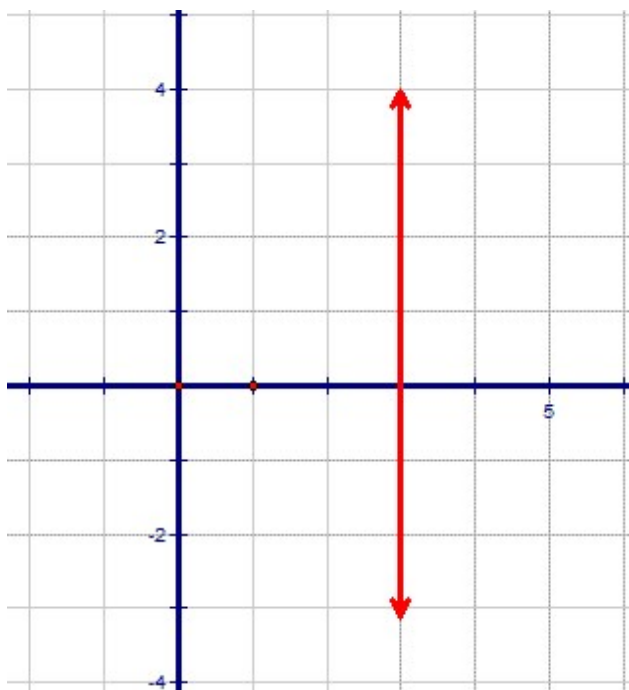
4. Use the graph below to answer the question(s).



Select all of the following statements that are true based on the graph above:

- There are four parts where the graph is decreasing.
- Part A has a rate of change that is greater than the rate of change for Part D.
- Part B is increasing for the interval $1 < x < 2$.
- Parts A, B, D, and E are increasing.
- The absolute value of the rate of change for Part C is greater than the absolute value of the rate of change for Part A.

5. Choose the correct description of the relation below:



- A. Linear; Function
- B. Nonlinear; Function
- C. Linear; Non-Function
- D. Nonlinear; Non-Function

6. For $y = \frac{3}{\sqrt{x-4}}$, what are the domain and range?

- A. $\{x \mid x > 4\}$ and $\{y \mid y > 0\}$
- B. $\{x \mid x \geq 4\}$ and $\{y \mid y > 0\}$
- C. $\{x \mid x > 4\}$ and $\{y \mid y \geq 0\}$
- D. $\{x \mid x \geq 4\}$ and $\{y \mid y \geq 0\}$

7. If $f(x) = \sqrt{9-x^2}$, what are its domain and range?

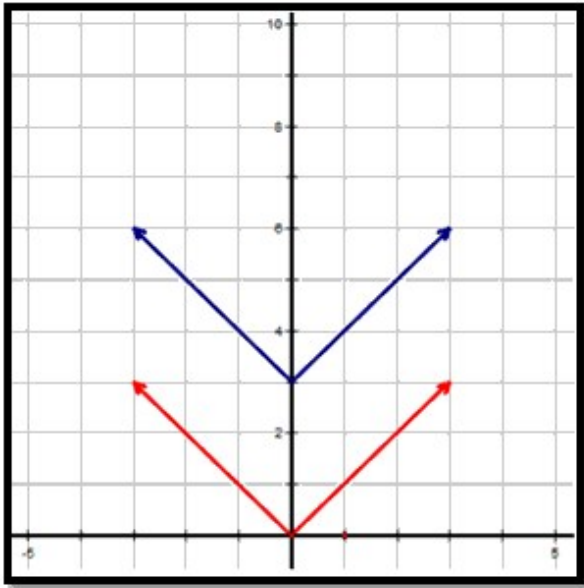
- A. domain: $\{x \mid -3 \leq x \leq 3\}$; range: $\{y \mid 0 \leq y \leq 3\}$
- B. domain: $\{x \mid x \neq \pm 3\}$; range: $\{y \mid 0 \leq y \leq 3\}$
- C. domain: $\{x \mid x \leq -3 \text{ or } x \geq 3\}$; range: $\{y \mid y \neq 0\}$
- D. domain: $\{x \mid x \neq 3\}$; range: $\{y \mid y \geq 0\}$

8. What is the domain of the function $f(x) = \sqrt{x-3}$?

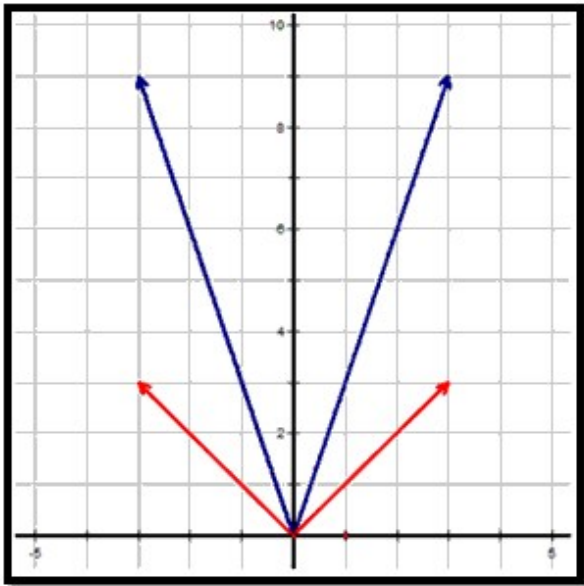
- A. $\{x \mid x \leq 0\}$
- B. $\{x \mid x \geq 0\}$
- C. $\{x \mid x \leq 3\}$
- D. $\{x \mid x \geq 3\}$

9. Which graph below shows the equations $y = |x|$ and $y = 3|x|$ for the interval $-3 \leq x \leq 3$?

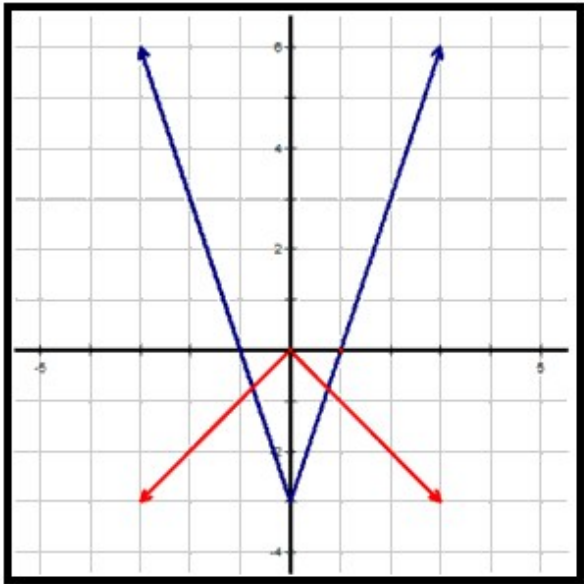
A.



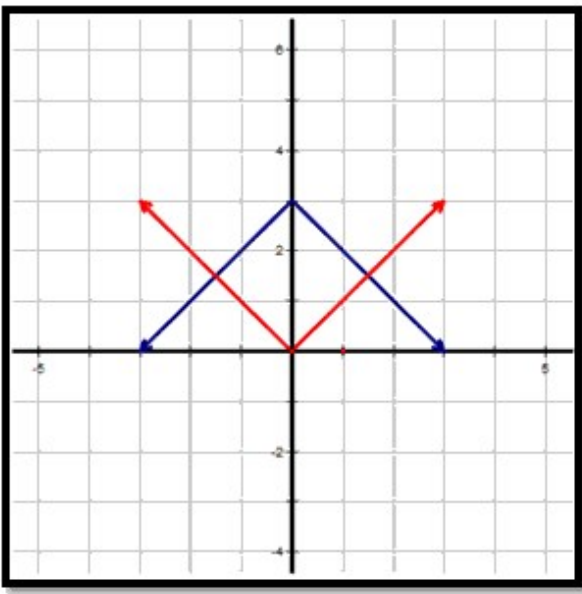
B.



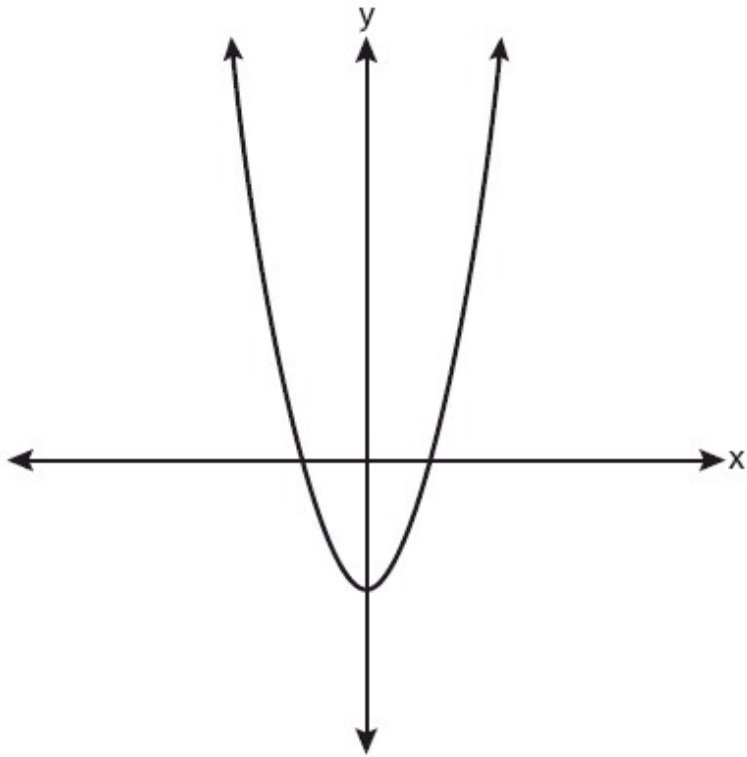
C.



D.

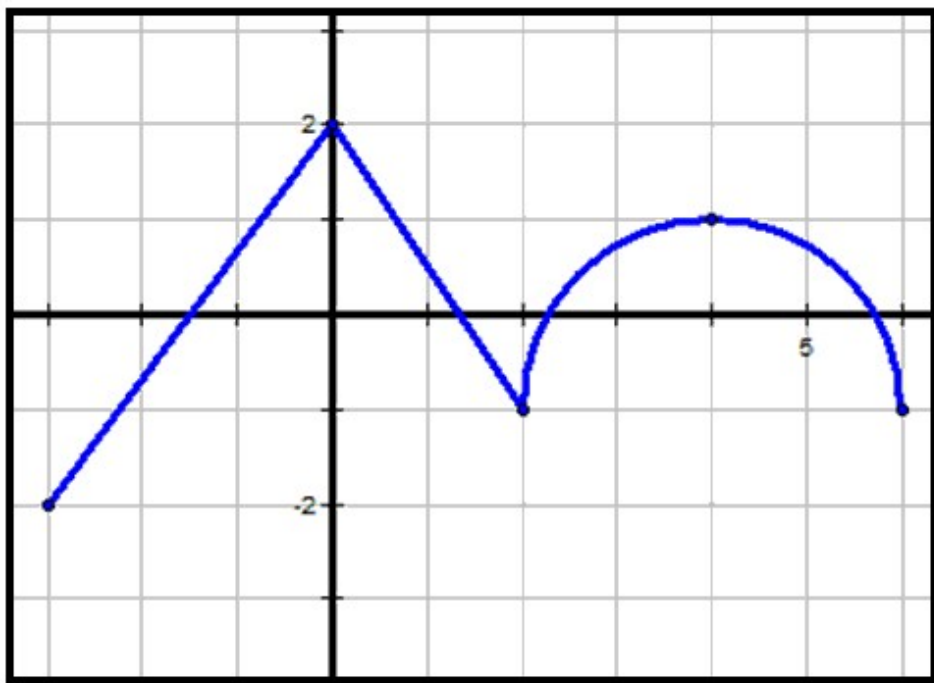


10. Which type of function is represented by the graph shown below?



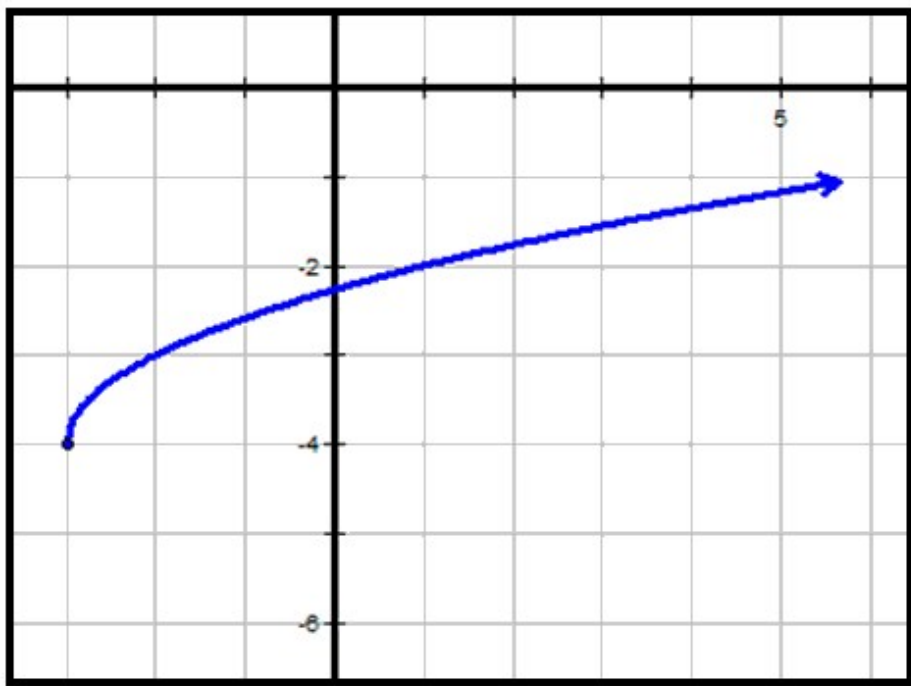
- A. absolute value
- B. exponential
- C. linear
- D. quadratic

11. What is the range of the following graph?



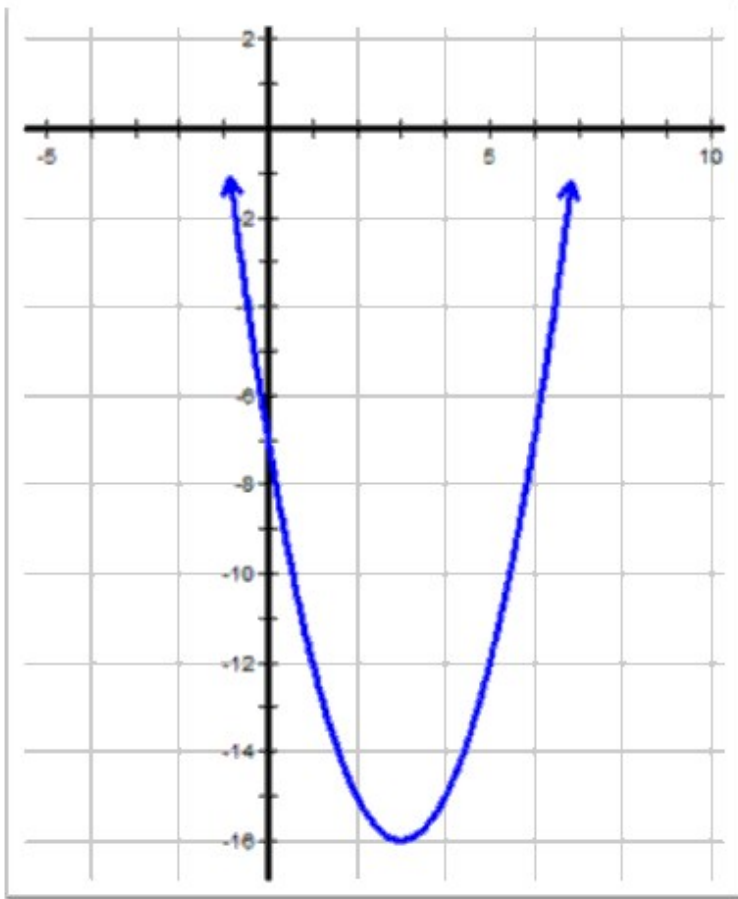
- A. $[-3, 2]$
- B. $[-2, 2]$
- C. $[-3, 6]$
- D. $[-1, 1]$

12. Using the graph below, determine the domain of the function.



- A. $[-3, 6)$
- B. $[-4, -1)$
- C. $[-3, \infty)$
- D. $[-4, \infty)$

13. Using the graph below, determine the range of the function.



- A. $[-16, -1]$
- B. All Real Numbers
- C. $(-6, 10)$
- D. $[-16, \infty)$

14. What is the range of the function $f(x) = -x^2 + 25$?

- A. $(-25, \infty)$
- B. $[-\infty, 25]$
- C. $[-\infty, 25)$
- D. $(-\infty, 25]$

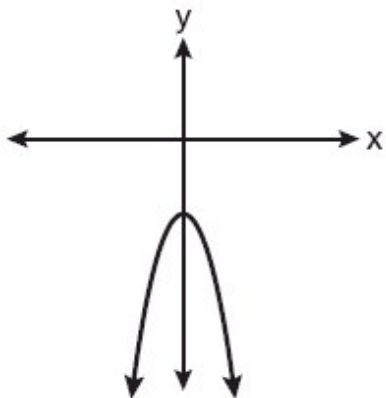
15. Find the domain of $g(x) = -3\sqrt{x^2 - 4}$

- A. $x > 2$ or $x < -2$
- B. $x \leq -2$ and $x \geq 2$
- C. $x \leq -2$ or $x \geq 2$
- D. $x \leq 2$

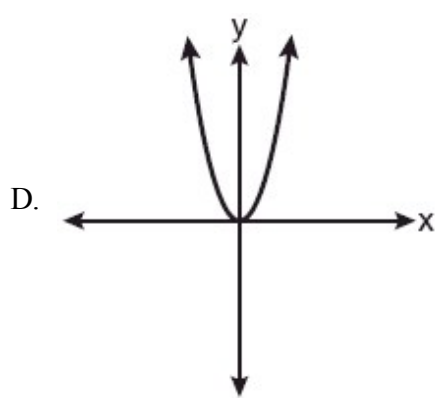
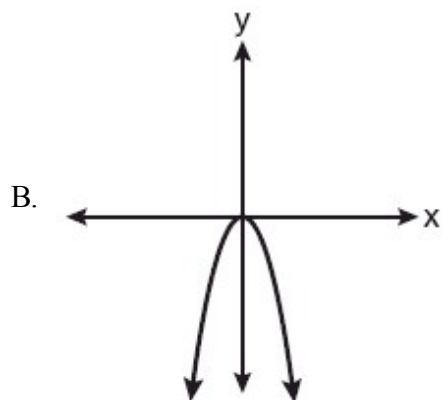
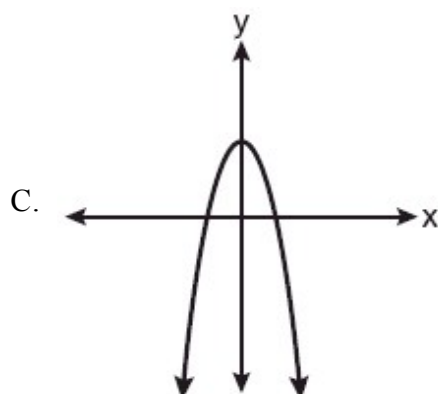
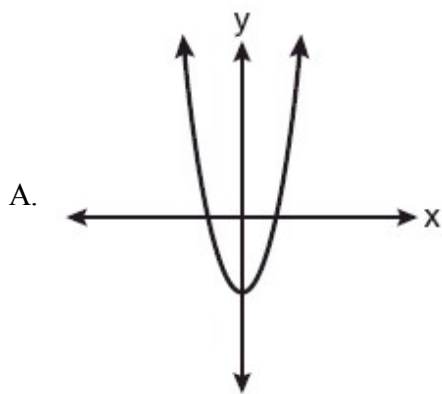
16. Given $h(x) = \sqrt{2x-12}$. What is the domain of the function?

- A. $(6, \infty]$
- B. $(6, \infty)$
- C. $[6, \infty)$
- D. $[6, \infty]$

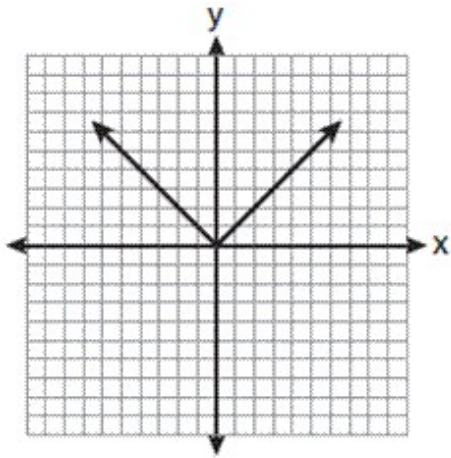
17. The diagram below shows the graph of $y = -x^2 - c$.



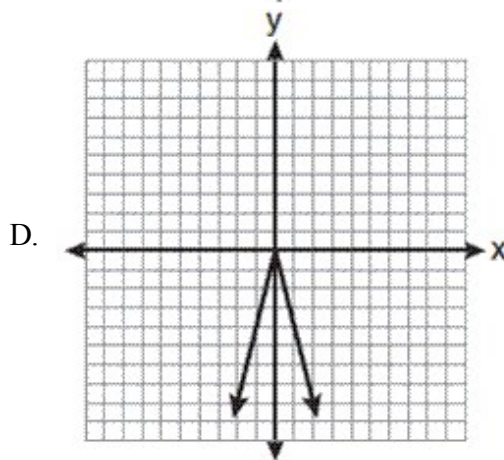
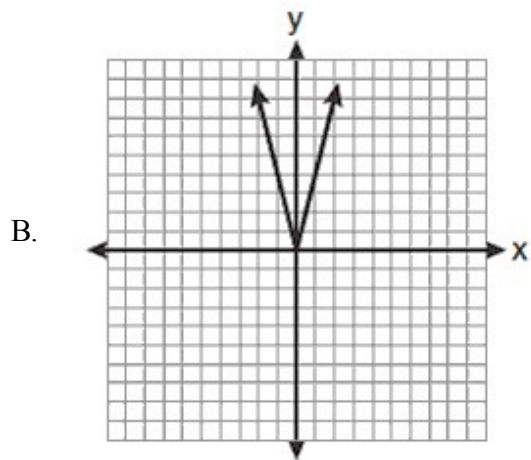
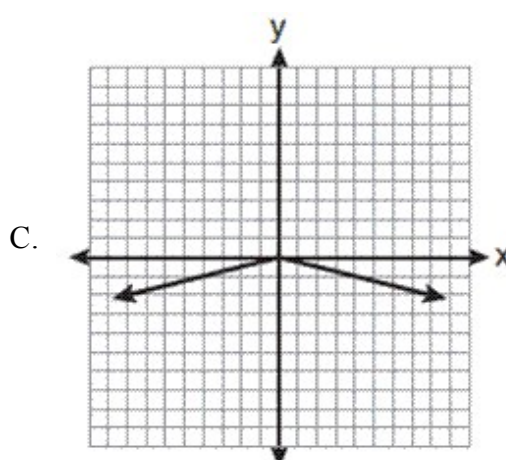
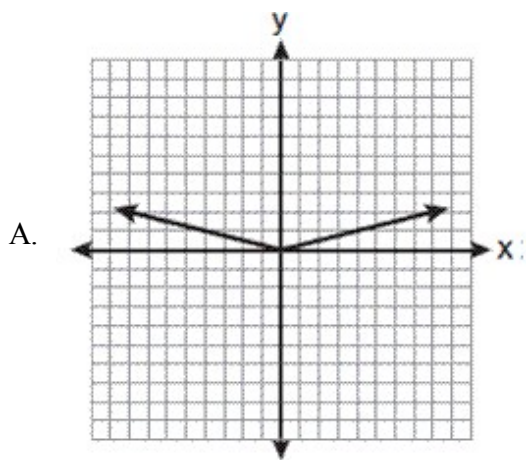
Which diagram shows the graph of $y = x^2 - c$?



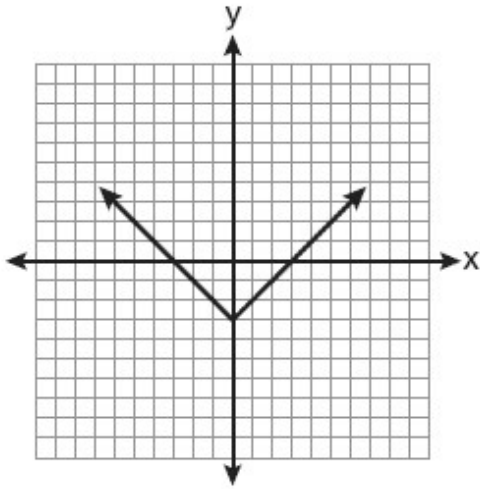
18. The graph of the equation $y = |x|$ is shown in the diagram below.



Which diagram could represent a graph of the equation $y = a|x|$ when $-1 < a < 0$?

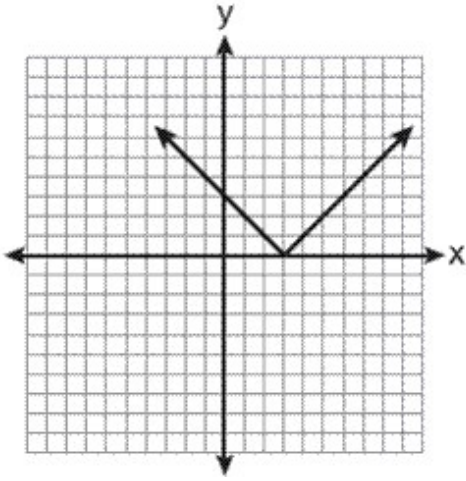


19. Which equation is represented by the graph below?

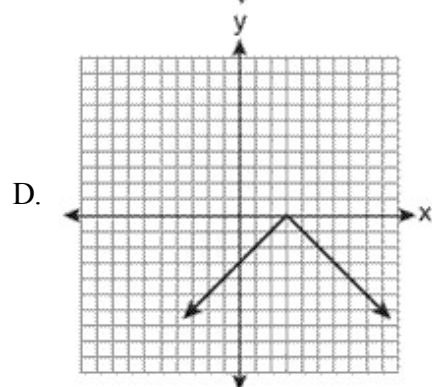
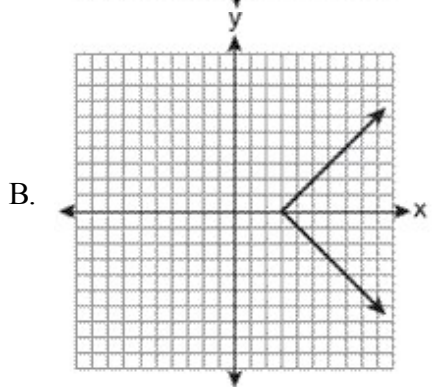
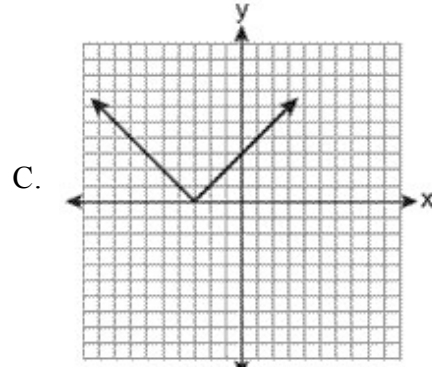
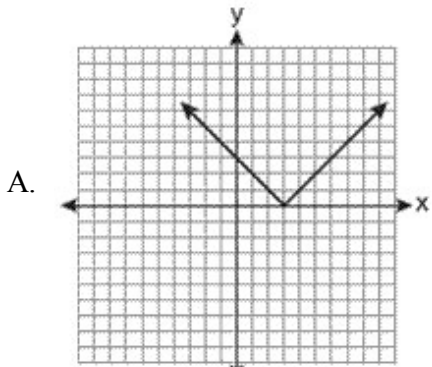


- A. $y = x^2 - 3$
- B. $y = (x - 3)^2$
- C. $y = |x| - 3$
- D. $y = |x - 3|$

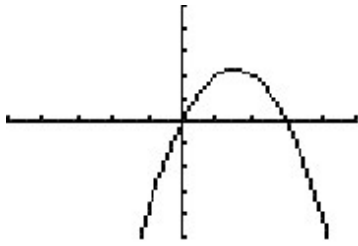
20. The diagram below shows the graph of $y = |x - 3|$.



Which diagram shows the graph of $y = -|x - 3|$?

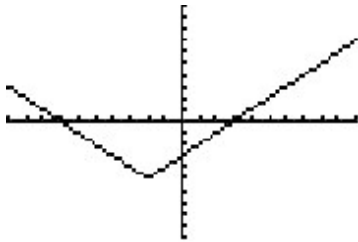


21. The graph below is represented best by which of the equations?



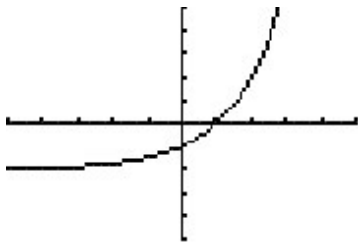
- A. $y = 2x$
- B. $y = x^2 + 2x$
- C. $y = -|x - 3| + 3$
- D. $y = -x^2 + 4$

22. The graph below is represented best by which of the equations?



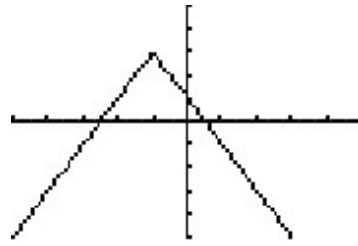
- A. $y = -2x + 1$
- B. $y = 2^x$
- C. $y = |x + 4| - 3$
- D. $y = x^2 - 4$

23. The graph below is the graph of what type of function?



- A. Linear
- B. Exponential
- C. Absolute value
- D. Quadratic

24. The graph below is the graph of what type of function?



- A. Linear
- B. Exponential
- C. Absolute value
- D. Quadratic

25. Given:

$A = \{\text{all odd integers from 1 through 19, inclusive}\}$

$B = \{9, 11, 13, 15, 17\}$

What is the complement of set B within set A ?

- A. $\{3, 5, 7\}$
- B. $\{3, 5, 7, 19\}$
- C. $\{1, 3, 5, 7\}$
- D. $\{1, 3, 5, 7, 19\}$

26. Given:

$R = \{1, 2, 3, 4\}$

$A = \{0, 2, 4, 6\}$

$P = \{1, 3, 5, 7\}$

What is $R \cap P$?

- A. $\{0, 1, 2, 3, 4, 5, 6, 7\}$
- B. $\{1, 2, 3, 4, 5, 7\}$
- C. $\{1, 3\}$
- D. $\{2, 4\}$

27. Given:

$$A = \{2, 4, 5, 7, 8\}$$

$$B = \{3, 5, 8, 9\}$$

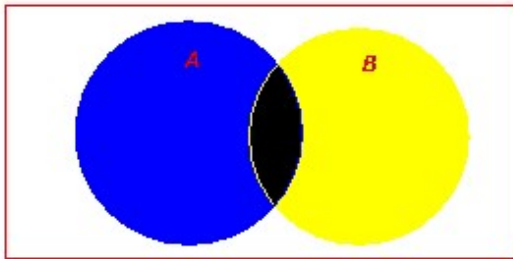
What is $A \cup B$?

- A. $\{5\}$
- B. $\{5, 8\}$
- C. $\{2, 3, 4, 7, 9\}$
- D. $\{2, 3, 4, 5, 7, 8, 9\}$

28. If the universal set is {pennies, nickels, dimes, quarters}, what is the complement of the set {nickels}?

- A. $\{\}$
- B. {pennies, quarters}
- C. {pennies, dimes, quarters}
- D. {pennies, nickels, dimes, quarters}

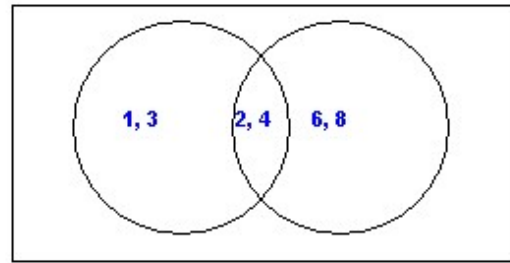
29. The Venn diagram below represents set A and set B .



If set A is the set of all the odd numbers from 1 to 20, and set B is the set of all the prime numbers from 1 to 20, what is the set represented by the black area of the Venn diagram?

- A. $\{3, 5, 7, 11, 13, 17, 19\}$
- B. $\{3, 5, 7, 9, 11, 13, 17, 19\}$
- C. $\{1, 3, 5, 7, 11, 13, 17, 19\}$
- D. $\{1, 2, 3, \dots, 20\}$

30. The diagram below represents two sets of numbers.



What is the union of the two sets?

- A. $\{2, 4\}$
- B. $\{1, 2, 3, 4, 6, 8\}$
- C. $\{3, 4, 6, 8\}$
- D. $\{6, 8\}$

Answer Key for Unit 3 Review (+ Unit 8 Venn Diagram)

- | | | |
|---|-------|-------|
| 1. D | 11. B | 21. D |
| 2. No , No, Yes , No | 12. C | 22. C |
| 3. C | 13. D | 23. B |
| 4. Part A has a rate of change that is greater than the rate of change for Part D., Part B is increasing for the interval $1 < x < 2.$, The absolute value of the rate of change for Part C is greater than the absolute value of the rate of change for Part A. | 14. D | 24. C |
| 5. C | 15. C | 25. D |
| 6. A | 16. C | 26. C |
| 7. A | 17. A | 27. D |
| 8. D | 18. C | 28. C |
| 9. B | 19. C | 29. A |
| 10. D | 20. D | 30. B |