

Name _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Find the formula for the function.

1) Express the perimeter of a square as a function of the square's side length x .

1) _____

A) $p = 6x$

B) $p = 4x$

C) $p = \frac{3x}{2}$

D) $p = x^3$

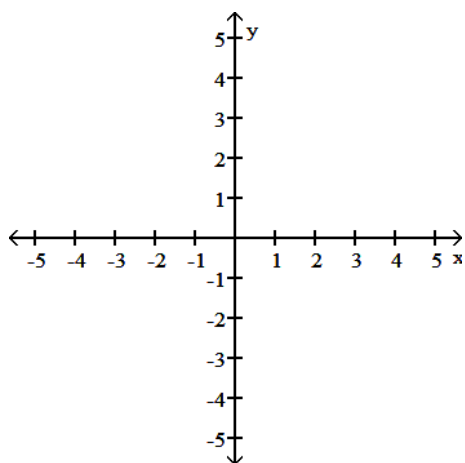
Answer: B

Diff: 0 Type: BI

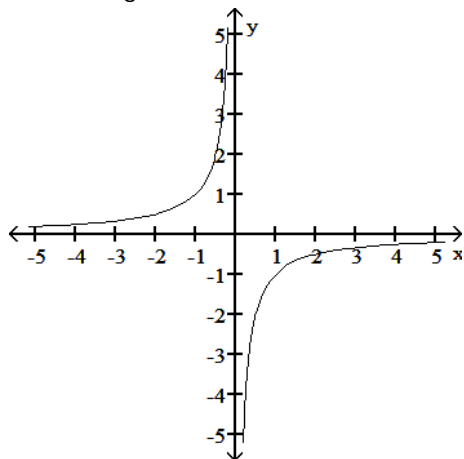
Graph the function. Specify the intervals over which the function is increasing and the intervals where it is decreasing.

2) $y = \frac{1}{x}$

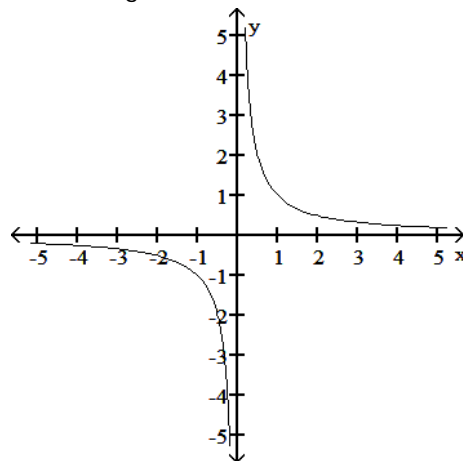
2) _____



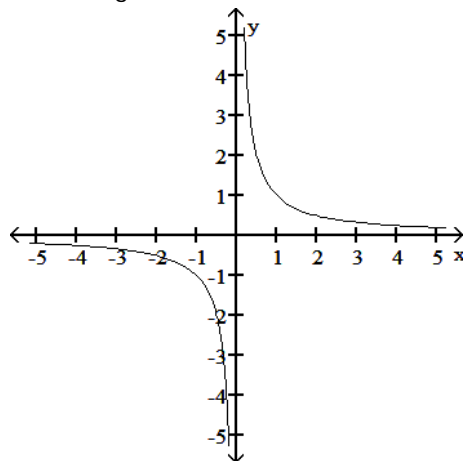
A) Increasing $-\infty < x < 0$
 Decreasing $0 < x < \infty$



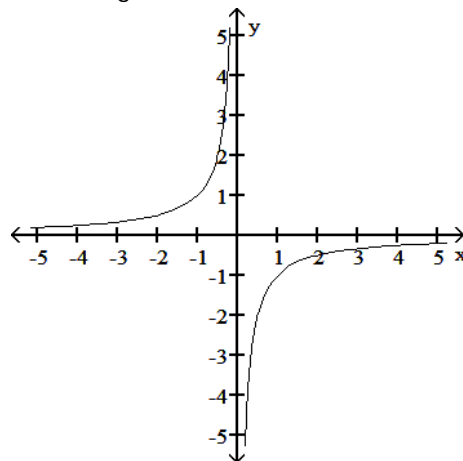
B) Decreasing $-\infty < x < 0$ and $0 < x < \infty$



C) Decreasing $-\infty < x < 0$
Increasing $0 < x < \infty$



D) Increasing $-\infty < x < 0$ and $0 < x < \infty$



Answer: B

Diff: 0 Type: BI

Provide an appropriate response.

3) Consider the function $y = \sqrt{1 - \frac{1}{x}}$. Can x be 0?

A) Yes

Answer: B

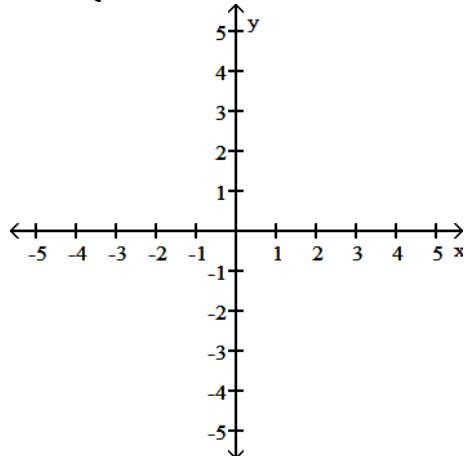
Diff: 0 Type: BI

B) No

3) _____

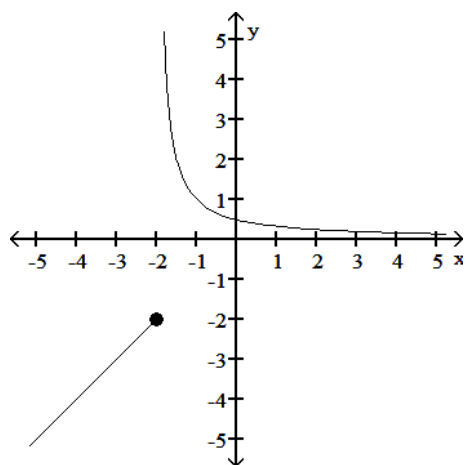
Graph the function.

$$4) g(x) = \begin{cases} \frac{1}{x+2}, & x < -2 \\ x, & x \geq -2 \end{cases}$$

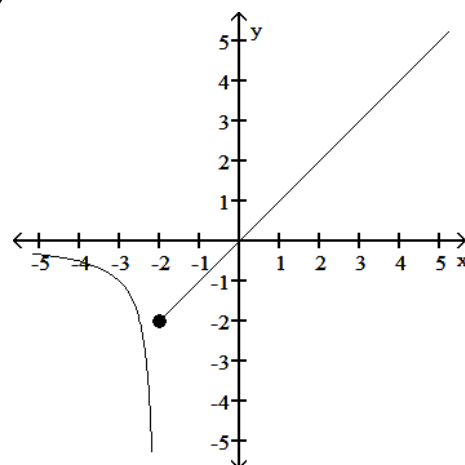


4) _____

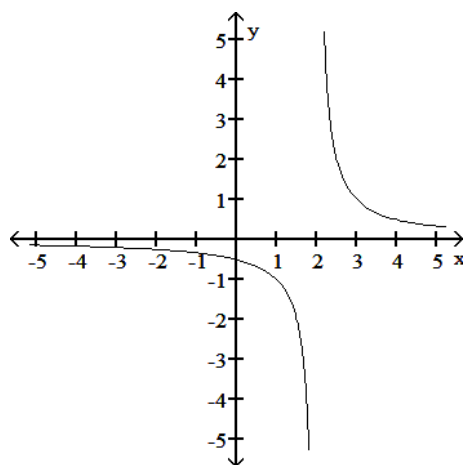
A)



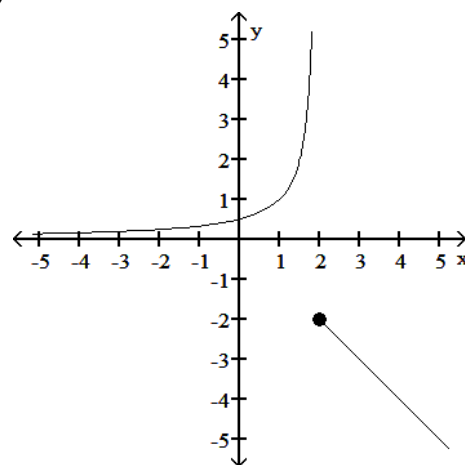
B)



C)



D)

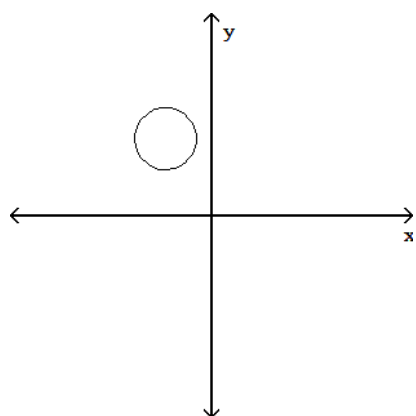


Answer: B

Diff: 0 Type: BI

Determine whether or not the graph is a graph of a function of x .

5)



A) Not a function

B) Function

Answer: A

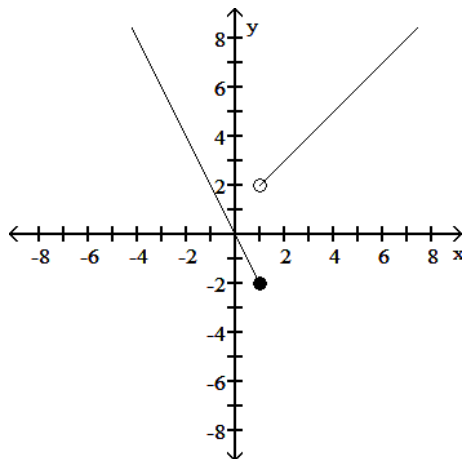
Diff: 0 Type: BI

5) _____

Find a formula for the function graphed.

6)

6) _____



A) $f(x) = \begin{cases} 2x, & x \leq 1 \\ x + 1, & x > 1 \end{cases}$

B) $f(x) = \begin{cases} -2x, & x \leq 1 \\ x + 1, & x > 1 \end{cases}$

C) $f(x) = \begin{cases} -2x, & x \leq 1 \\ x + 2, & x > 1 \end{cases}$

D) $f(x) = \begin{cases} x, & x \leq 1 \\ 2x + 1, & x > 1 \end{cases}$

Answer: B

Diff: 0 Type: BI

Determine if the function is even, odd, or neither.

7) $f(x) = 4x^2 + 5$

A) Even

B) Odd

C) Neither

7) _____

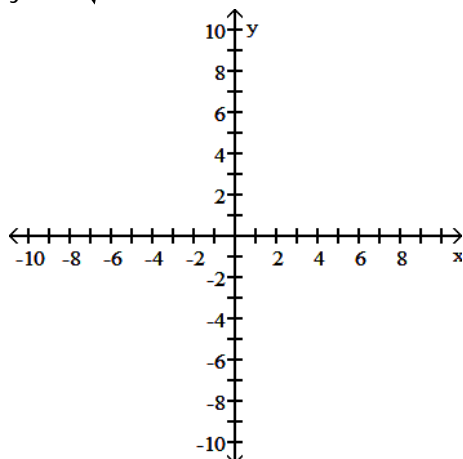
Answer: A

Diff: 0 Type: BI

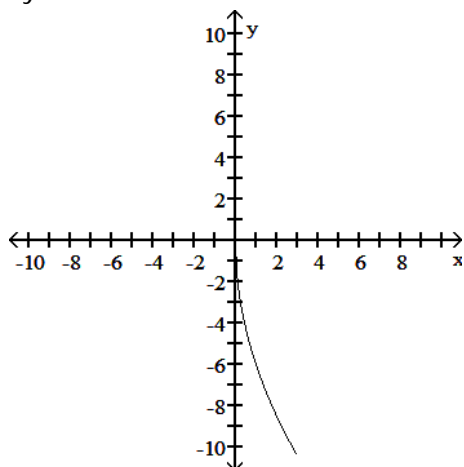
Graph the function. Determine the symmetry, if any, of the function.

8) $y = -6\sqrt{x}$

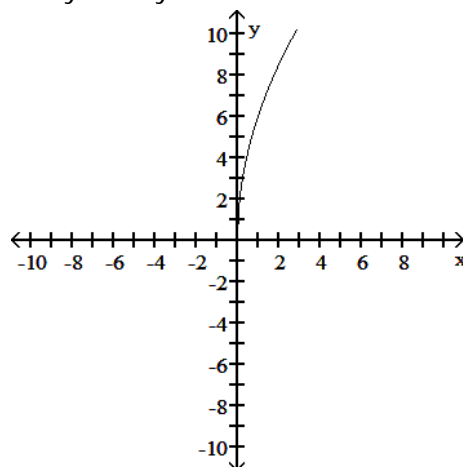
8) _____



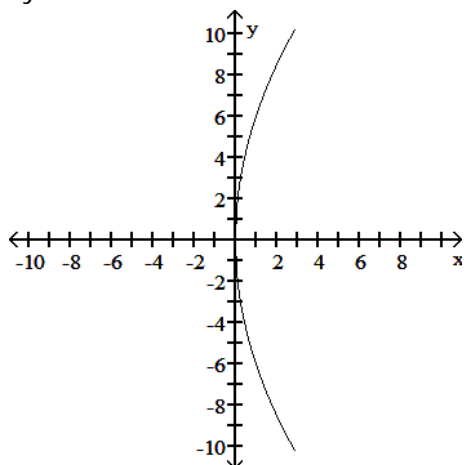
A) Symmetric about the x-axis



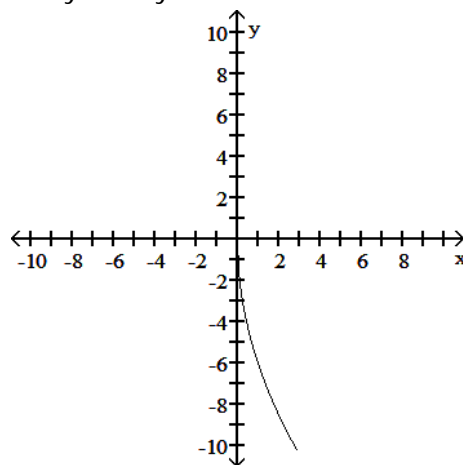
B) No symmetry



C) Symmetric about the x-axis



D) No symmetry

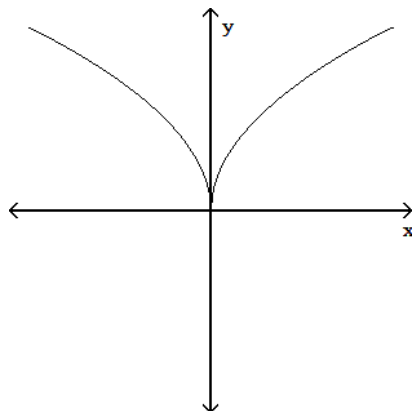


Answer: D

Diff: 0 Type: BI

Determine whether or not the graph is a graph of a function of x.

9)



A) Not a function

B) Function

Answer: B

Diff: 0 Type: BI

9) _____

Find the domain and range of the function.

10) $F(t) = t^2 - 5$

A) $D: [-25, \infty), R: [-5, \infty)$

C) $D: (-\infty, \infty), R: (-\infty, \infty)$

Answer: D

Diff: 0 Type: BI

B) $D: [0, \infty), R: (-\infty, -5]$

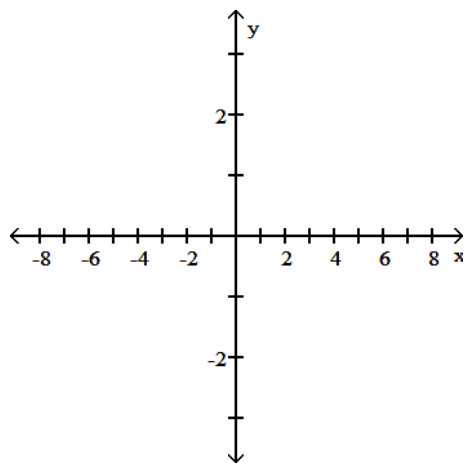
D) $D: (-\infty, \infty), R: [-5, \infty)$

10) _____

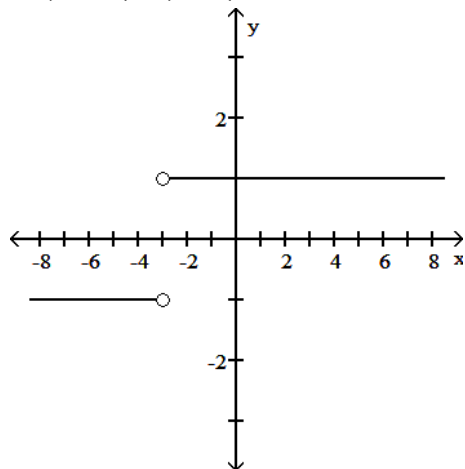
Find the domain and graph the function.

11) $F(t) = \frac{|t+3|}{t+3}$

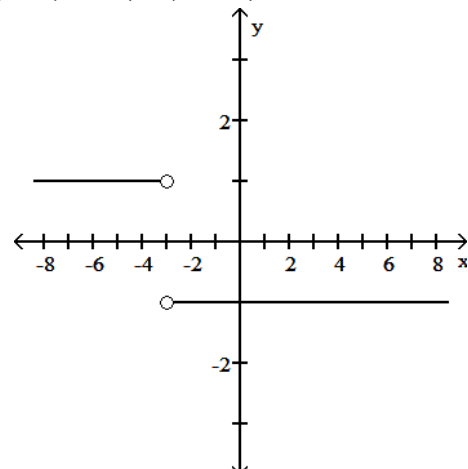
11) _____



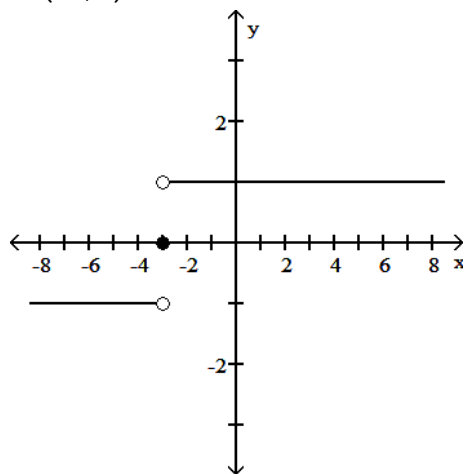
A) $D: (-\infty, -3) \cup (-3, \infty)$



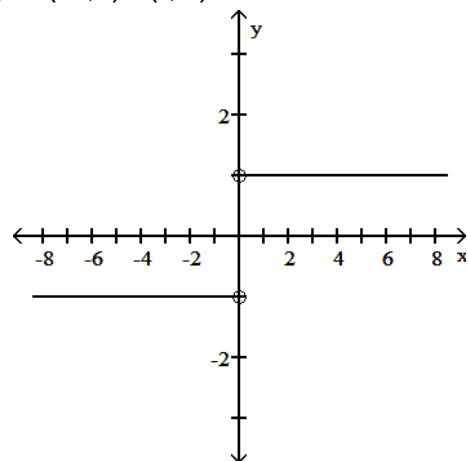
B) $D: (-\infty, -3) \cup (-3, \infty)$



C) $D: (-\infty, \infty)$



D) $D: (-\infty, 0) \cup (0, \infty)$



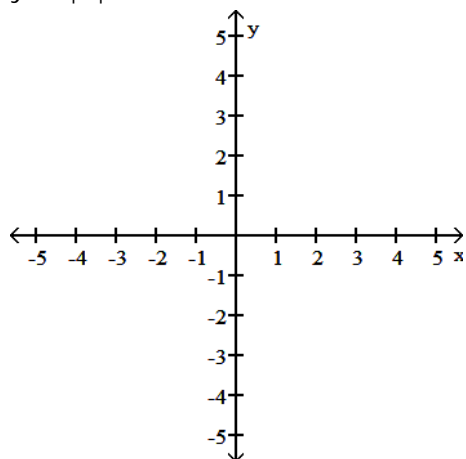
Answer: A

Diff: 0 Type: BI

Graph the function. Specify the intervals over which the function is increasing and the intervals where it is decreasing.

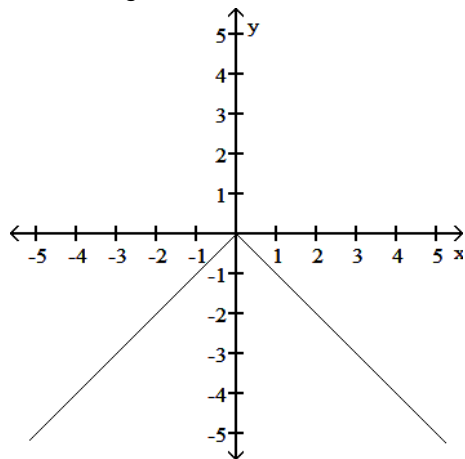
12) $y = -|x|$

12) _____

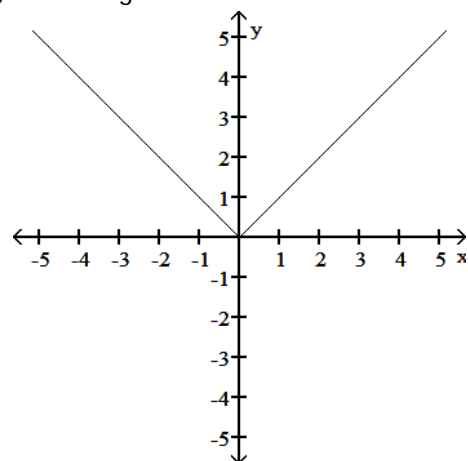


A) Increasing $-\infty < x \leq 0$

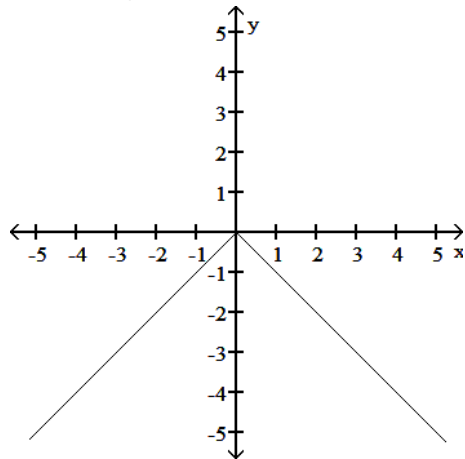
Decreasing $0 \leq x < \infty$



B) Increasing $-\infty < x < \infty$



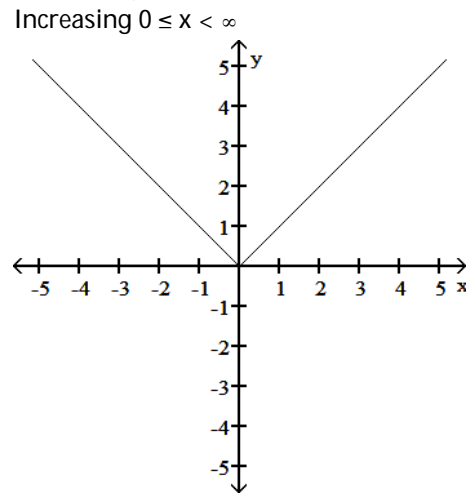
C) Decreasing $-\infty < x < \infty$



Answer: A

Diff: 0 Type: BI

D) Decreasing $-\infty < x \leq 0$



Increasing $0 \leq x < \infty$

Find the domain and range of the function.

13) $F(t) = \frac{10}{9\sqrt{t}}$

A) D: $(-\infty, 0)$, R: $(-\infty, 0)$

C) D: $[0, \infty)$, R: $[0, \infty)$

Answer: B

Diff: 0 Type: BI

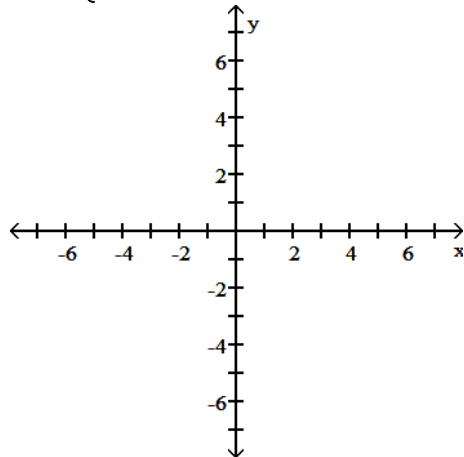
B) D: $(0, \infty)$, R: $(0, \infty)$

D) D: $(-\infty, \infty)$, R: $(-\infty, \infty)$

13) _____

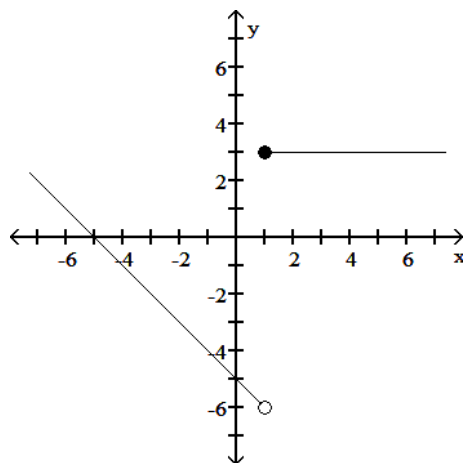
Graph the function.

14) $f(x) = \begin{cases} -5 - x, & x < 1 \\ 3, & x \geq 1 \end{cases}$

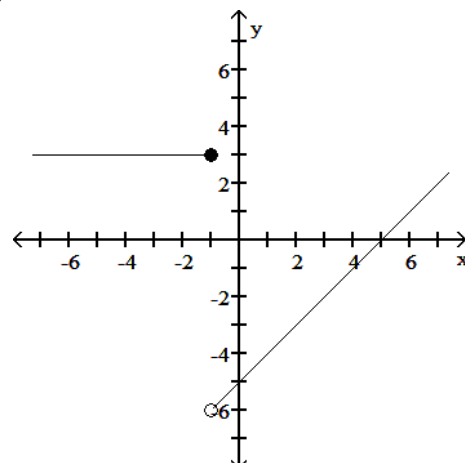


14) _____

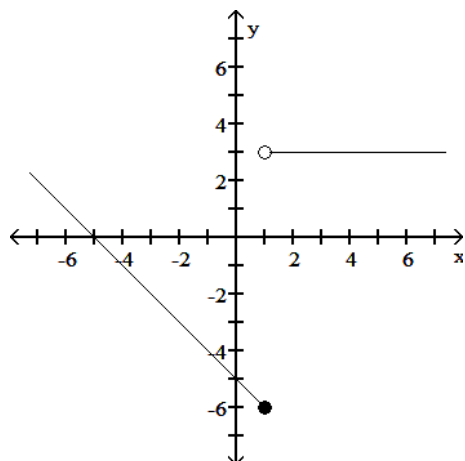
A)



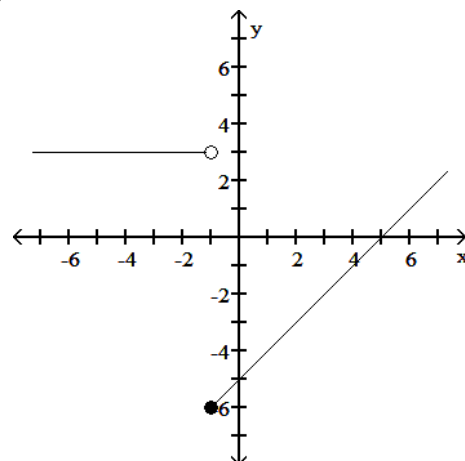
B)



C)



D)



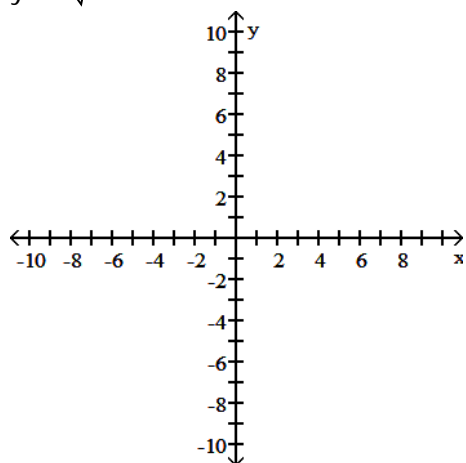
Answer: A

Diff: 0 Type: BI

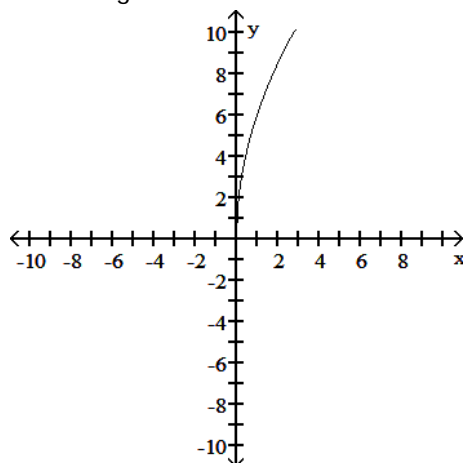
Graph the function. Specify the intervals over which the function is increasing and the intervals where it is decreasing.

15) $y = 6\sqrt{x}$

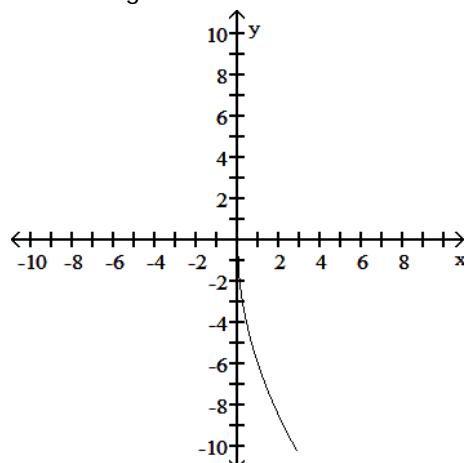
15) _____



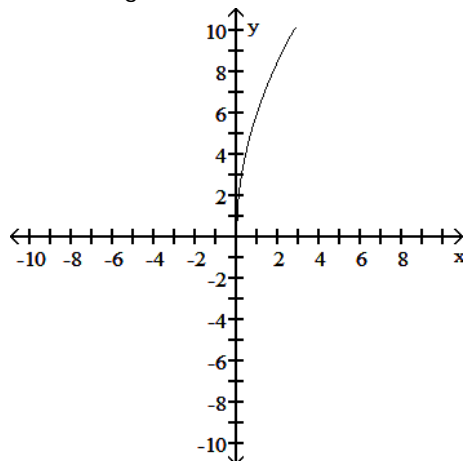
A) Increasing $0 \leq x < \infty$



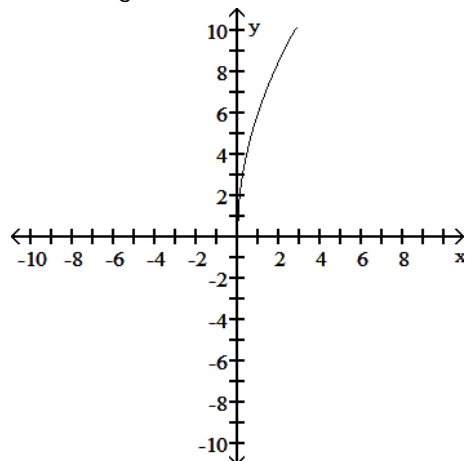
B) Decreasing $0 \leq x < \infty$



C) Decreasing $0 \leq x < \infty$



D) Increasing $-\infty < x < \infty$

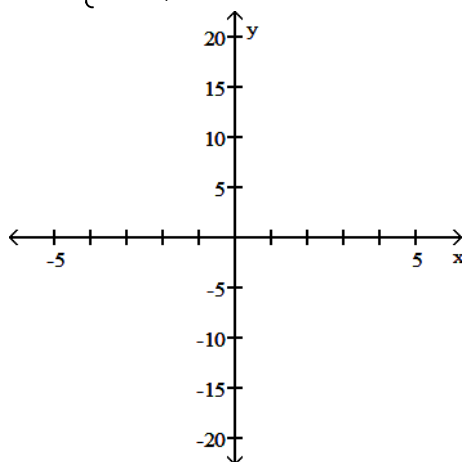


Answer: A

Diff: 0 Type: BI

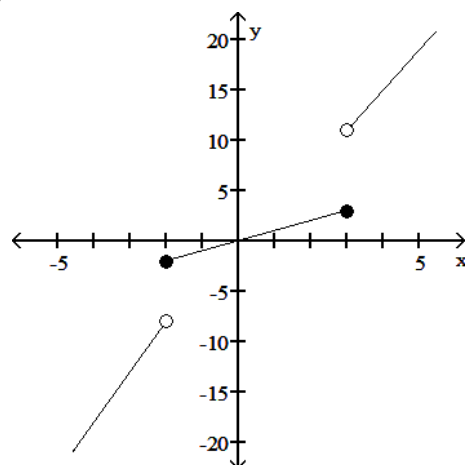
Graph the function.

$$16) f(x) = \begin{cases} 5x + 2, & x < -2 \\ x, & -2 \leq x \leq 3 \\ 4x - 1, & x > 3 \end{cases}$$

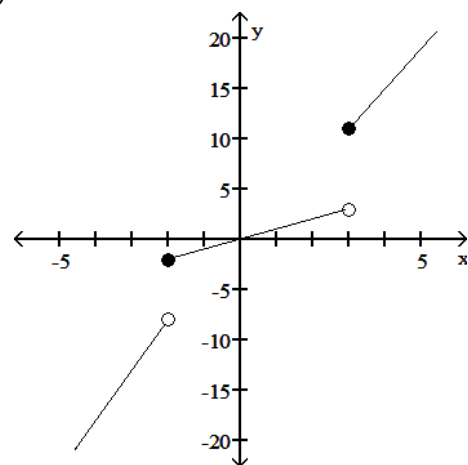


16) _____

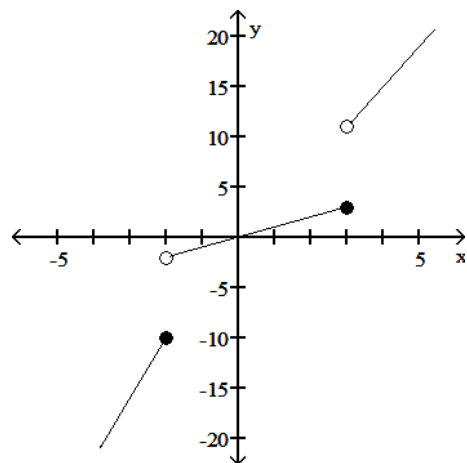
A)



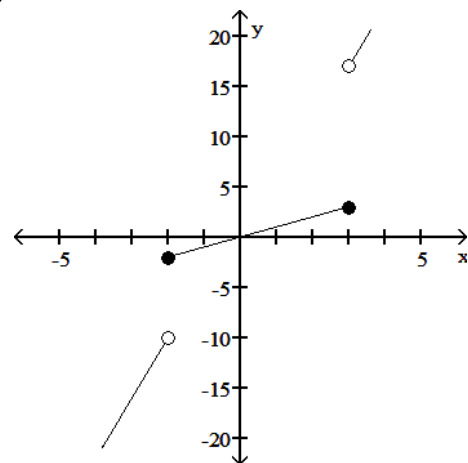
B)



C)



D)

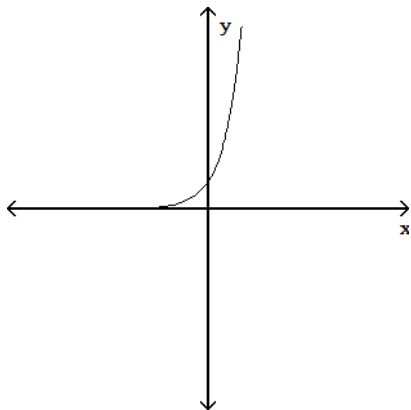


Answer: A

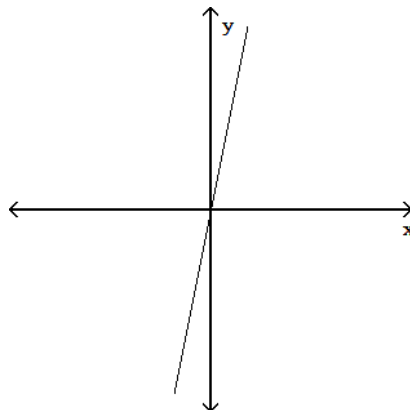
Diff: 0 Type: BI

Match the equation with its graph.

17) $y = 5^x$
A)

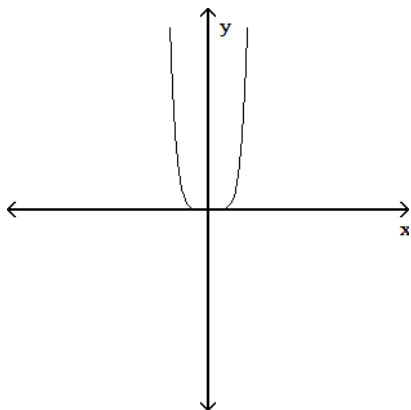


B)

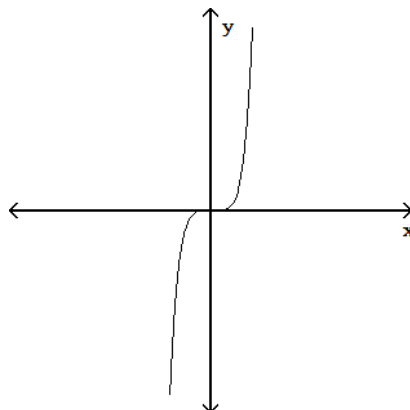


17) _____

C)



D)



Answer: A
Diff: 0 Type: MC

Find the formula for the function.

18) Express the volume of a sphere as a function of its radius r .

A) $V = \frac{3}{4}\pi r^3$

B) $V = \frac{2}{3}\pi r^2$

C) $V = \frac{4}{3}\pi r^3$

D) $V = \pi r^3$

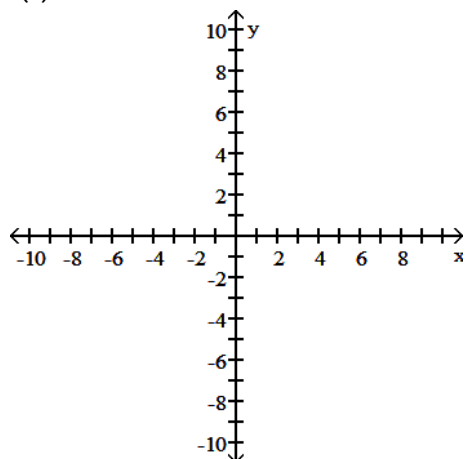
18) _____

Answer: C
Diff: 0 Type: BI

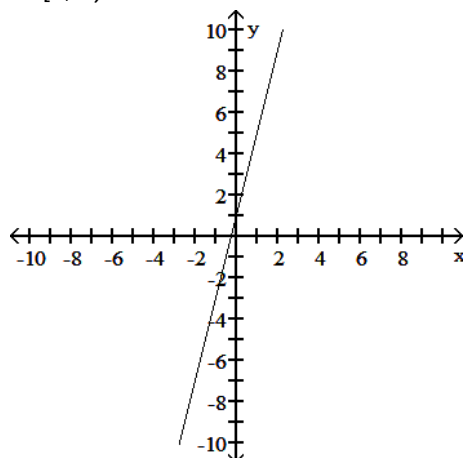
Find the domain and graph the function.

19) $f(x) = 4x + 1$

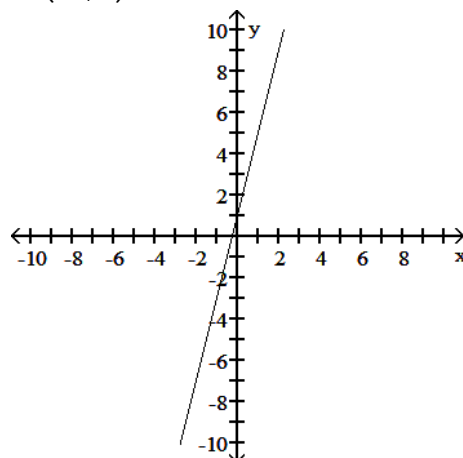
19) _____



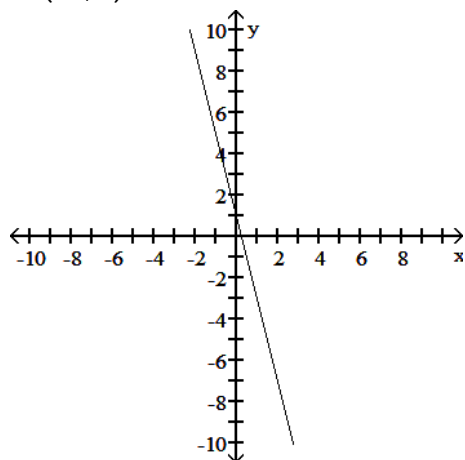
A) $D: [0, \infty)$



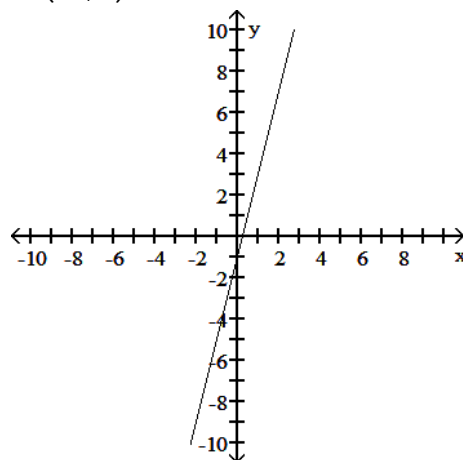
B) $D: (-\infty, \infty)$



C) $D: (-\infty, \infty)$



D) $D: (-\infty, \infty)$



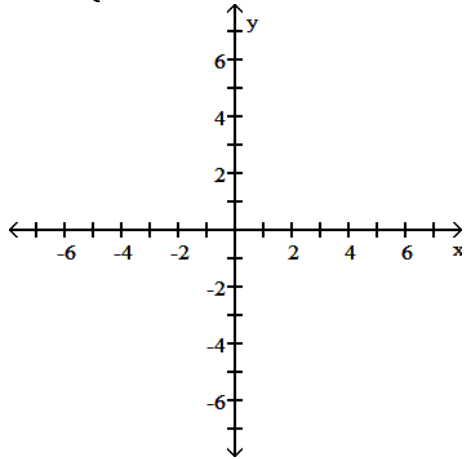
Answer: B

Diff: 0 Type: BI

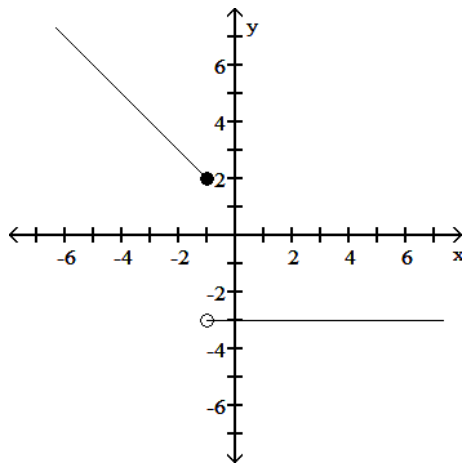
Graph the function.

$$20) g(x) = \begin{cases} -3 & x \leq 0 \\ x + 2, & x > 0 \end{cases}$$

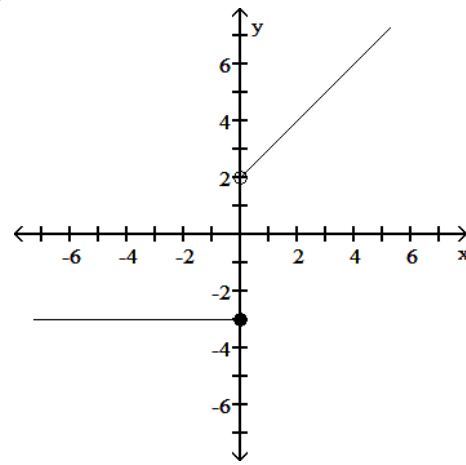
20) _____



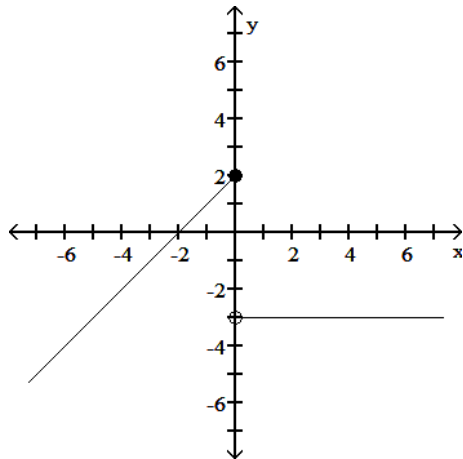
A)



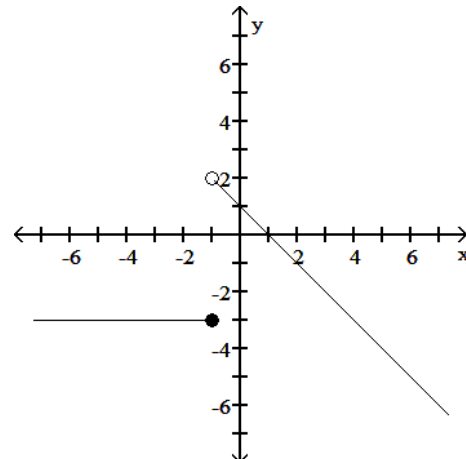
B)



C)



D)



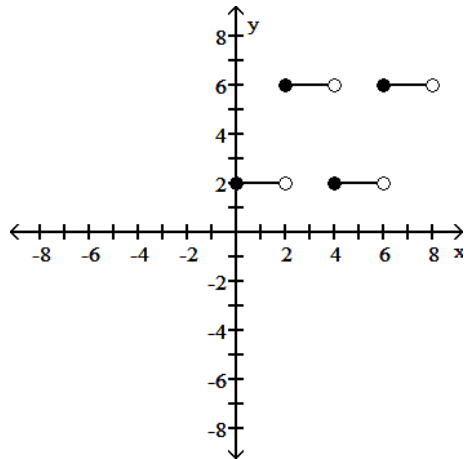
Answer: B

Diff: 0 Type: BI

Find a formula for the function graphed.

21)

21) _____



A) $f(x) = \begin{cases} 2, & 0 \leq x \leq 2 \\ 6, & 2 < x \leq 4 \\ 2, & 4 < x \leq 6 \\ 6, & 6 < x \leq 8 \end{cases}$

B) $f(x) = \begin{cases} 2, & 0 \leq x < 2 \\ 6, & 2 \leq x < 4 \\ 2, & 4 \leq x < 6 \\ 6, & 6 \leq x < 8 \end{cases}$

C) $f(x) = \begin{cases} 2, & 0 \leq x < 6 \\ 6, & 2 \leq x < 8 \end{cases}$

D) $f(x) = \begin{cases} 6, & 0 \leq x < 6 \\ 2, & 2 \leq x < 8 \end{cases}$

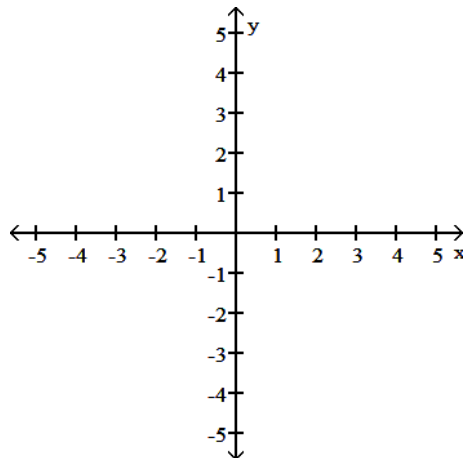
Answer: B

Diff: 0 Type: BI

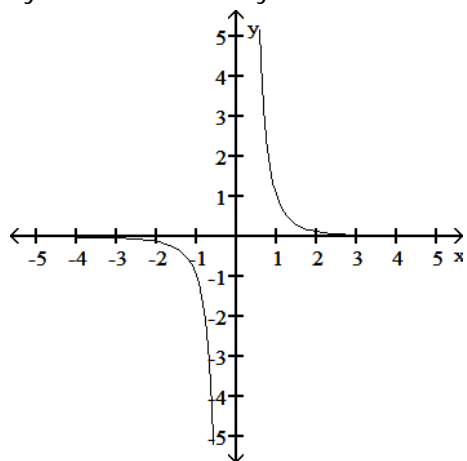
Graph the function. Determine the symmetry, if any, of the function.

22) $y = \frac{1}{x^3}$

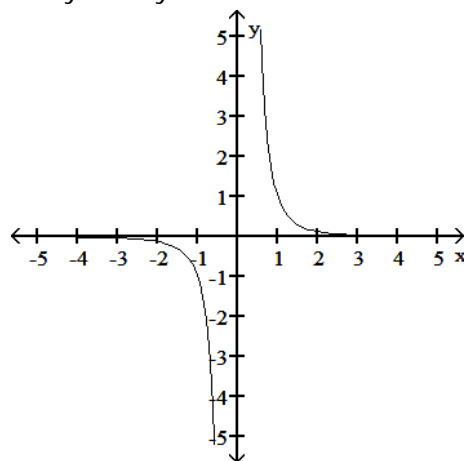
22) _____



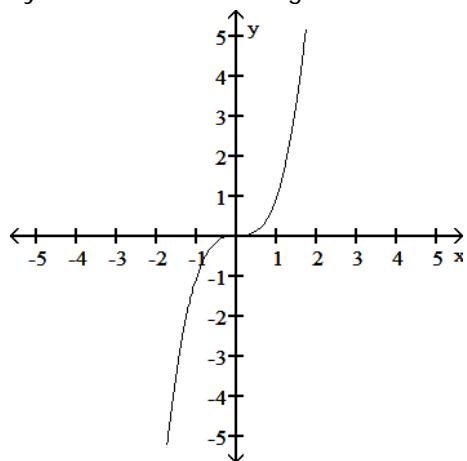
A) Symmetric about the y-axis



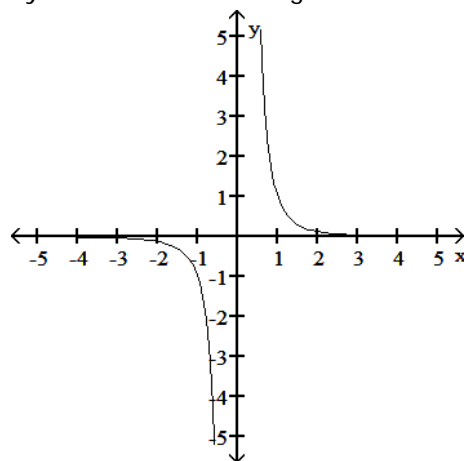
B) No symmetry



C) Symmetric about the origin



D) Symmetric about the origin



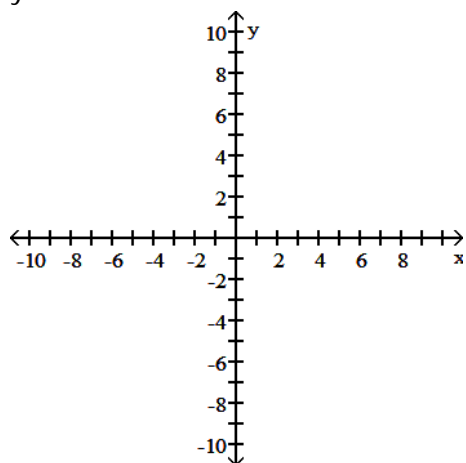
Answer: D

Diff: 0 Type: BI

Graph the function. Specify the intervals over which the function is increasing and the intervals where it is decreasing.

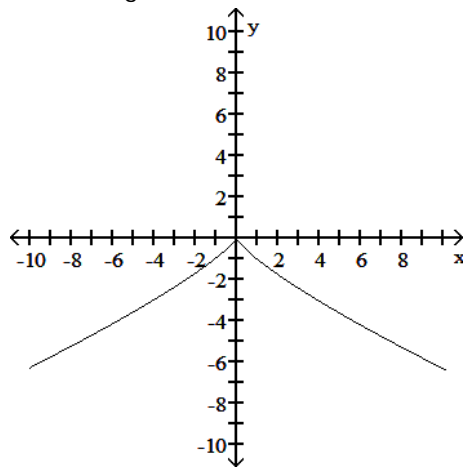
23) $y = -x^{4/5}$

23) _____

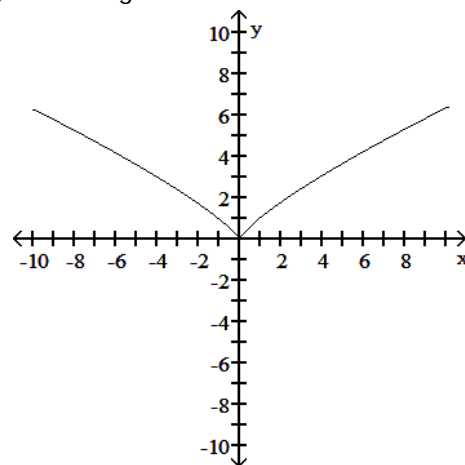


A) Increasing $-\infty < x < 0$

Decreasing $0 < x < \infty$

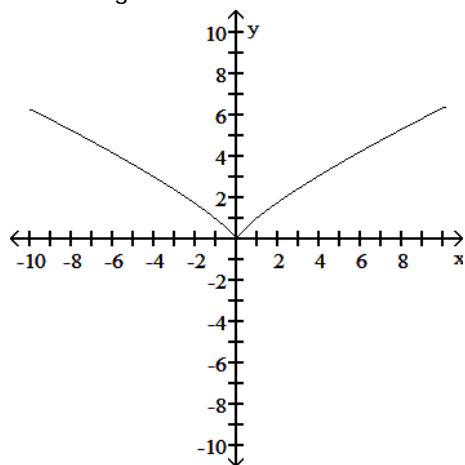


B) Increasing $-\infty < x < \infty$

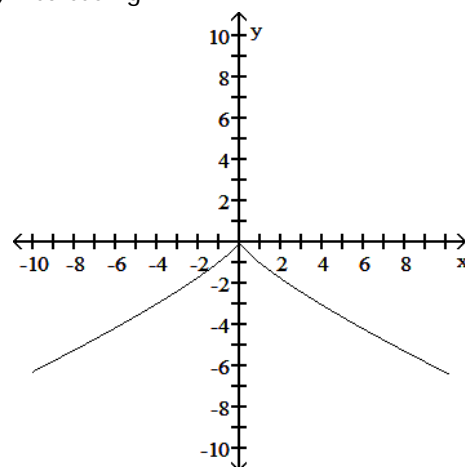


C) Decreasing $-\infty < x \leq 0$

Increasing $0 \leq x < \infty$



D) Decreasing $-\infty < x < \infty$



Answer: A

Diff: 0 Type: BI

Find the formula for the function.

24) Express the area of a square as a function of its side length x .

A) $A = x^4$

B) $A = x^2$

C) $A = 2x$

D) $A = 4x$

24) _____

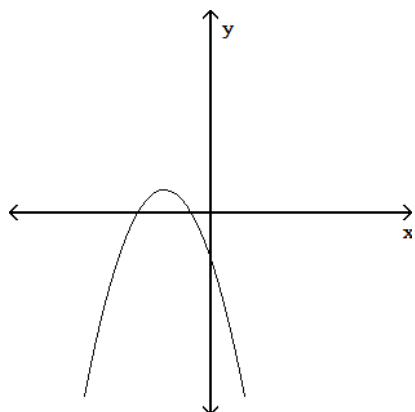
Answer: B

Diff: 0 Type: BI

Determine whether or not the graph is a graph of a function of x .

25)

25) _____



A) Not a function

B) Function

Answer: B

Diff: 0 Type: BI

Determine if the function is even, odd, or neither.

26) $f(x) = (x + 5)(x - 1)$

26) _____

A) Even

B) Odd

C) Neither

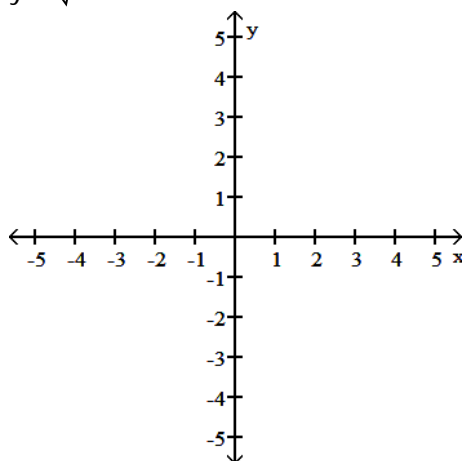
Answer: C

Diff: 0 Type: BI

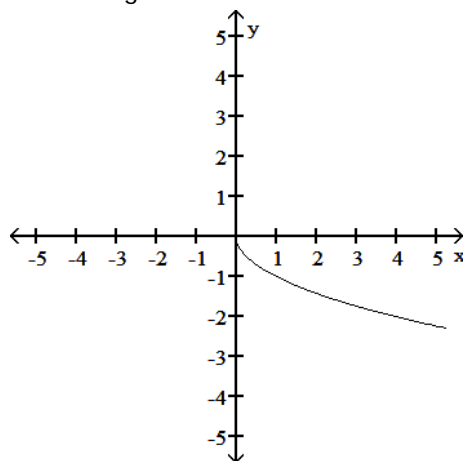
Graph the function. Specify the intervals over which the function is increasing and the intervals where it is decreasing.

27) $y = \sqrt{-x}$

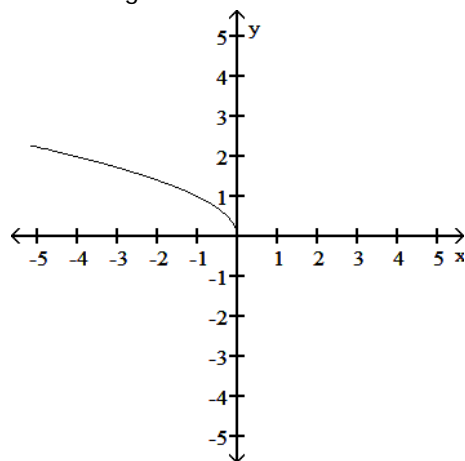
27) _____



A) Decreasing $0 \leq x < \infty$

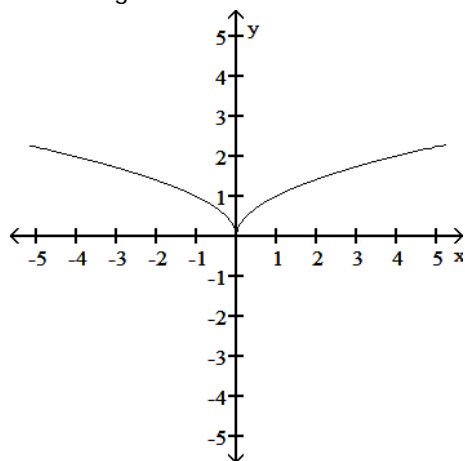


B) Decreasing $-\infty < x \leq 0$

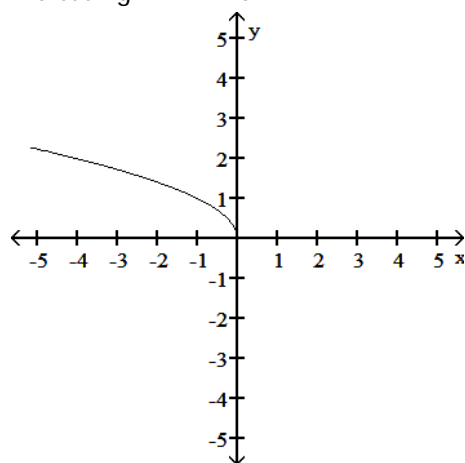


C) Decreasing $-\infty < x \leq 0$

Increasing $0 \leq x < \infty$



D) Increasing $-\infty < x \leq 0$



Answer: B

Diff: 0 Type: BI

Provide an appropriate response.

28) For what values of x is $\lfloor x \rfloor = -2$?

A) $-2 \leq x < -1$

B) $-3 \leq x < -2$

C) $-3 < x \leq -2$

D) $-2 < x \leq -1$

28) _____

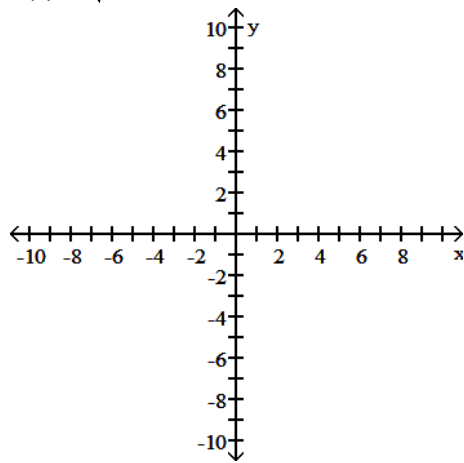
Answer: A

Diff: 0 Type: BI

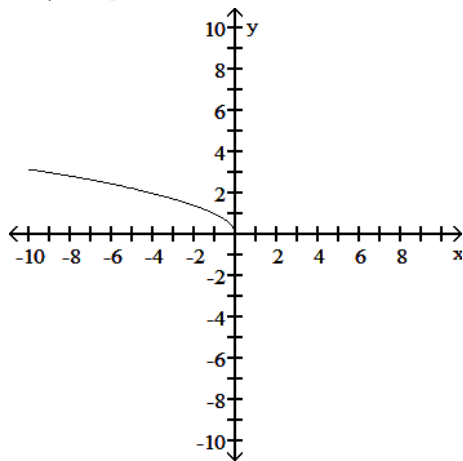
Find the domain and graph the function.

29) $F(x) = \sqrt{-x}$

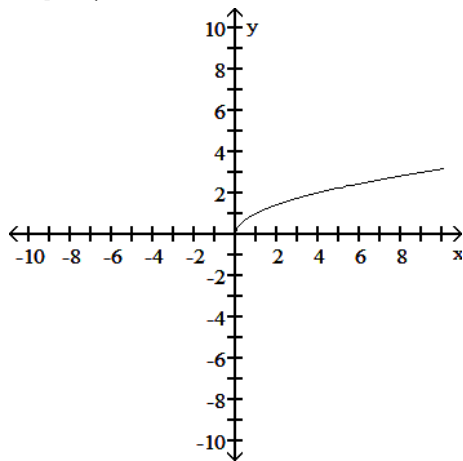
29) _____



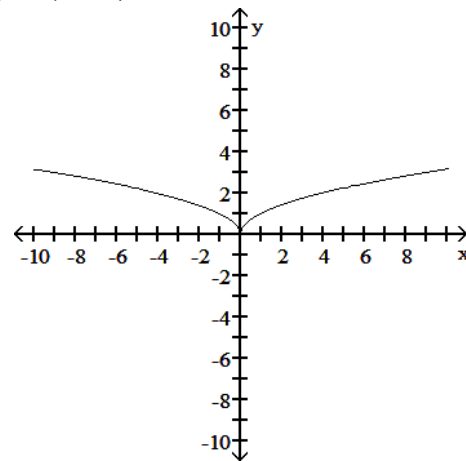
A) $D: (-\infty, 0]$



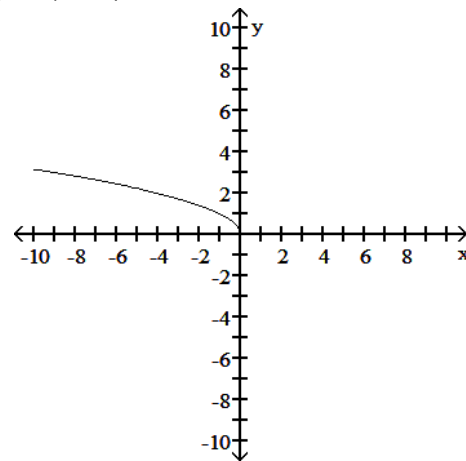
C) $D: [0, \infty)$



B) $D: (-\infty, \infty)$



D) $D: (-\infty, 0)$

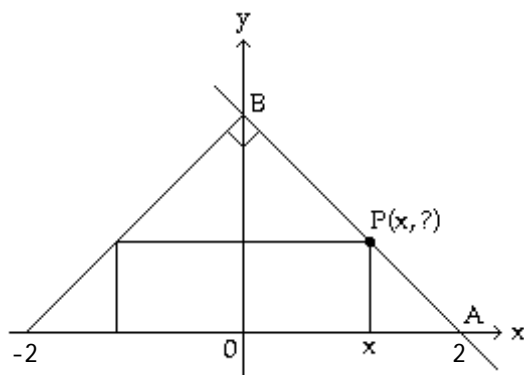


Answer: A

Diff: 0 Type: BI

Solve the problem.

- 30) The figure shown here shows a rectangle inscribed in an isosceles right triangle whose hypotenuse is 4 units long. Express the area A of the rectangle in terms of x . 30) _____



- A) $A(x) = 2x^2$ B) $A(x) = x(2 - x)$ C) $A(x) = 2x(2 - x)$ D) $A(x) = 2x(x - 2)$

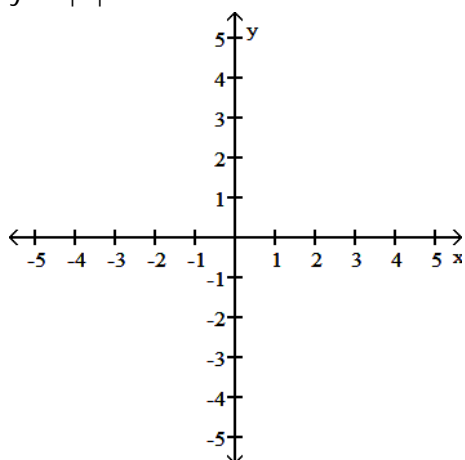
Answer: C

Diff: 0 Type: BI

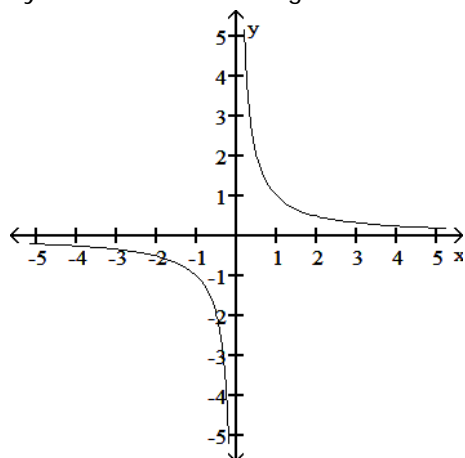
Graph the function. Determine the symmetry, if any, of the function.

31) $y = -|x|$

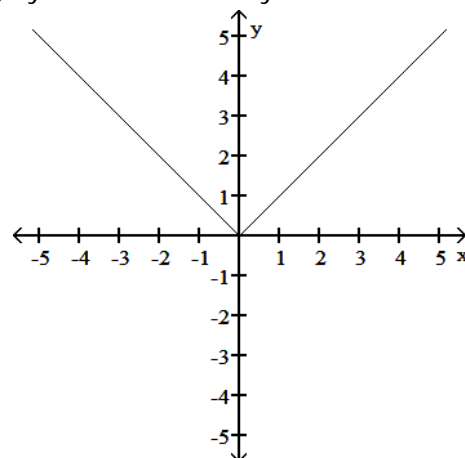
31) _____



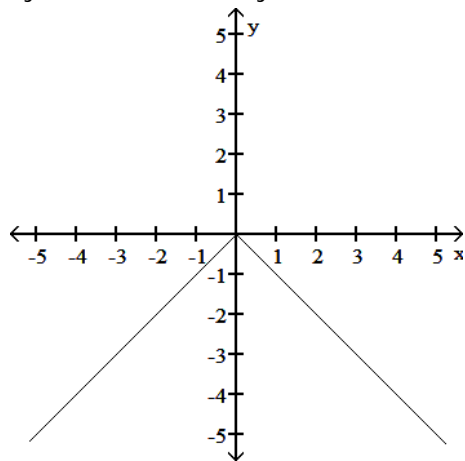
A) Symmetric about the origin



B) Symmetric about the y-axis



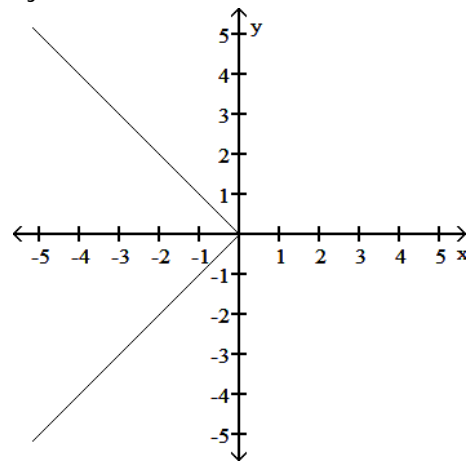
C) Symmetric about the y-axis



Answer: C

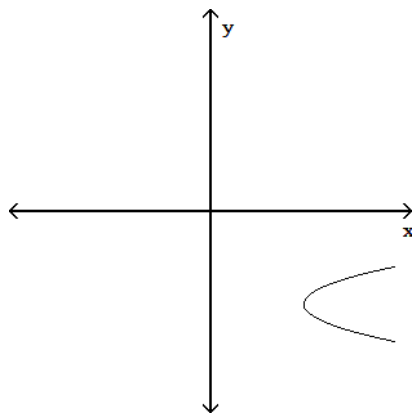
Diff: 0 Type: BI

D) Symmetric about the x-axis



Determine whether or not the graph is a graph of a function of x.

32)



A) Function

Answer: B

Diff: 0 Type: BI

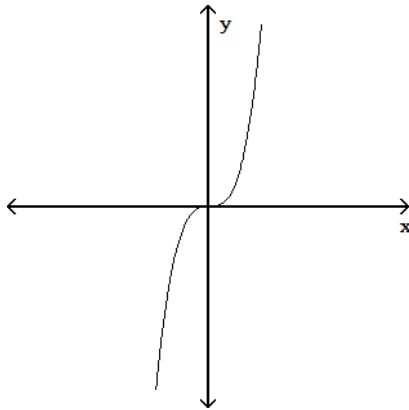
B) Not a function

32) _____

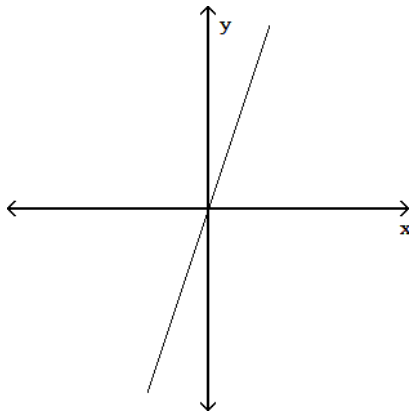
Match the equation with its graph.

33) $y = x^3$

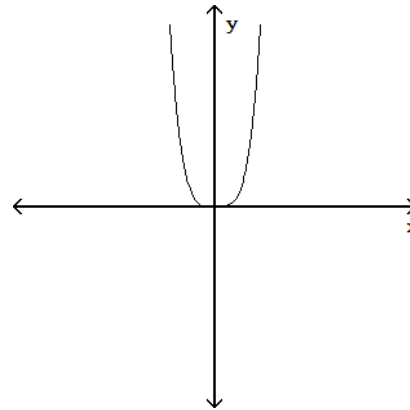
A)



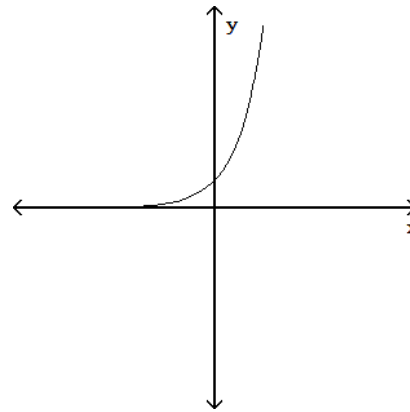
C)



B)



D)



Answer: A

Diff: 0 Type: MC

33) _____

Find the domain and range of the function.

34) $g(z) = \frac{-10}{\sqrt{z+1}}$

A) D: $(-\infty, -1)$, R: $(0, \infty)$

C) D: $(-1, \infty)$, R: $(-\infty, 0)$

B) D: $[0, \infty)$, R: $(-\infty, \infty)$

D) D: $[1, \infty)$, R: $(-\infty, \infty)$

Answer: C

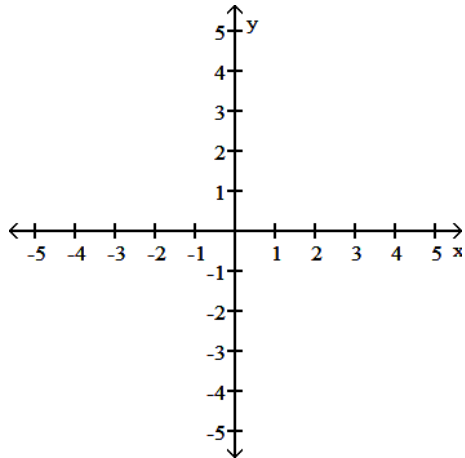
Diff: 0 Type: BI

34) _____

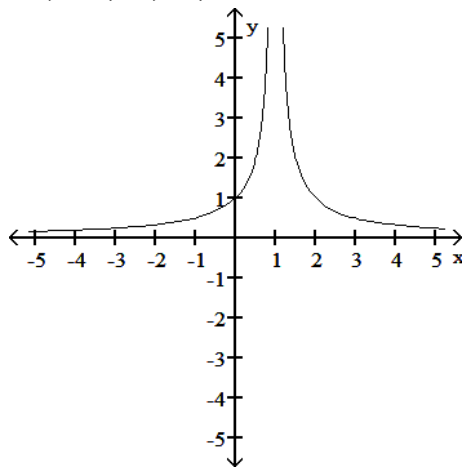
Find the domain and graph the function.

35) $G(t) = \frac{1}{|t - 1|}$

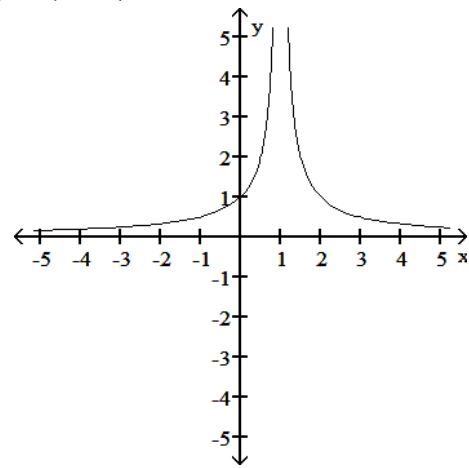
35) _____



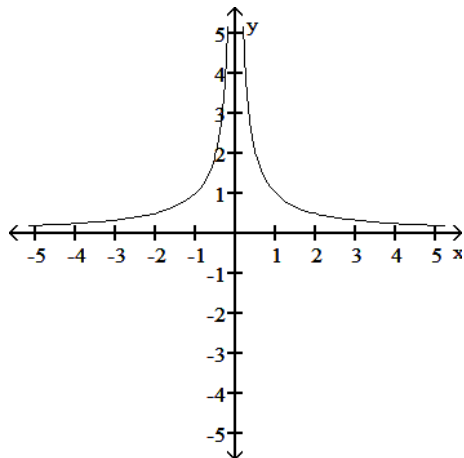
A) $D: (-\infty, 1) \cup (1, \infty)$



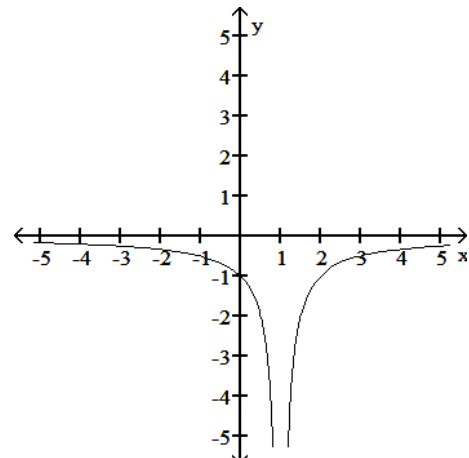
B) $D: (-\infty, \infty)$



C) $D: (-\infty, 0) \cup (0, \infty)$



D) $D: (-\infty, 1) \cup (1, \infty)$



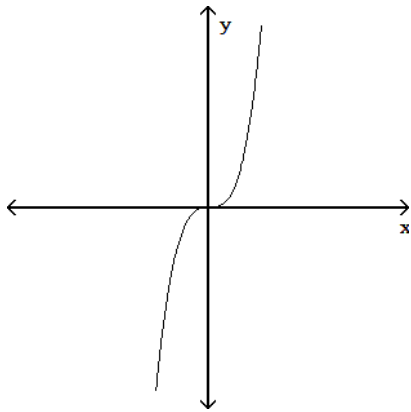
Answer: A

Diff: 0 Type: BI

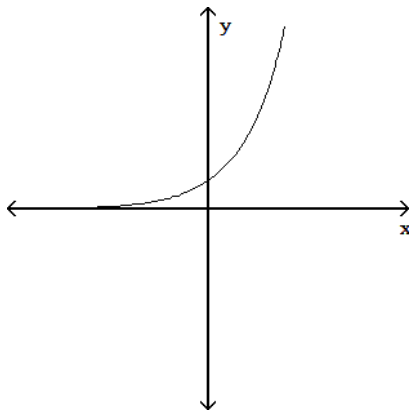
Match the equation with its graph.

36) $y = 2x$

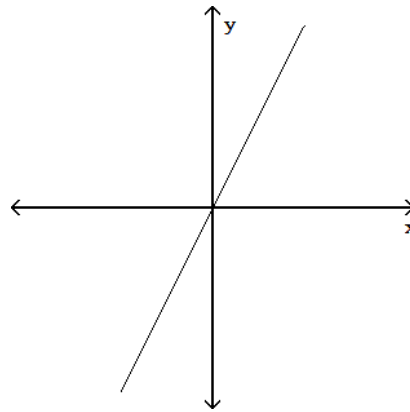
A)



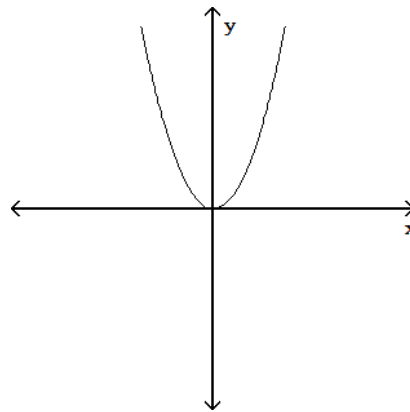
C)



B)



D)



36) _____

Answer: B

Diff: 0 Type: MC

Find the formula for the function.

37) Express the area of a circle as a function of its radius r .

A) $A = \pi r$

B) $A = \pi r^3$

C) $A = 2\pi r$

D) $A = \pi r^2$

37) _____

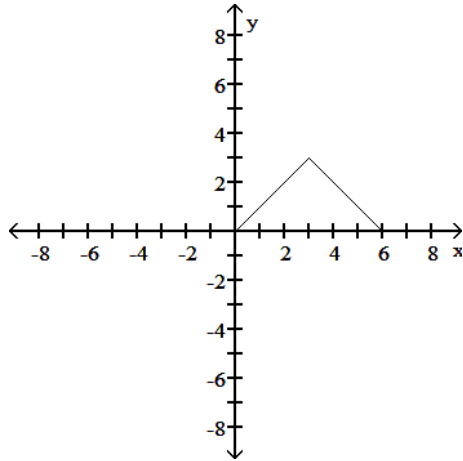
Answer: D

Diff: 0 Type: BI

Find a formula for the function graphed.

38)

38) _____



A) $f(x) = \begin{cases} x, & 0 \leq x \leq 3 \\ 6 - x, & 3 < x \leq 6 \end{cases}$

B) $f(x) = \begin{cases} 6 - x, & 0 \leq x \leq 3 \\ x, & 3 < x \leq 6 \end{cases}$

C) $f(x) = \begin{cases} -x, & 0 \leq x \leq 3 \\ x + 6, & 3 < x \leq 6 \end{cases}$

D) $f(x) = \begin{cases} x + 6, & 0 \leq x \leq 3 \\ -x, & 3 < x \leq 6 \end{cases}$

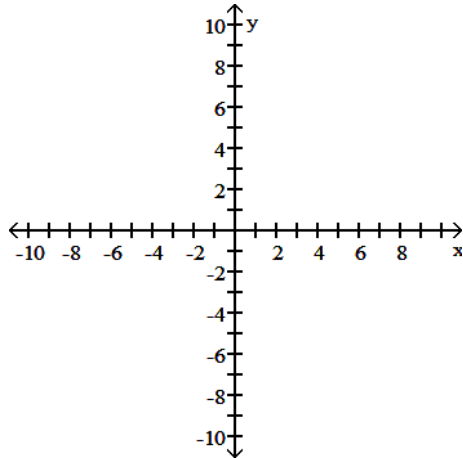
Answer: A

Diff: 0 Type: BI

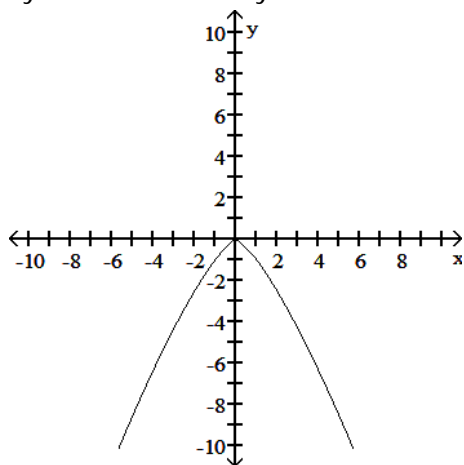
Graph the function. Determine the symmetry, if any, of the function.

39) $y = -x^{4/3}$

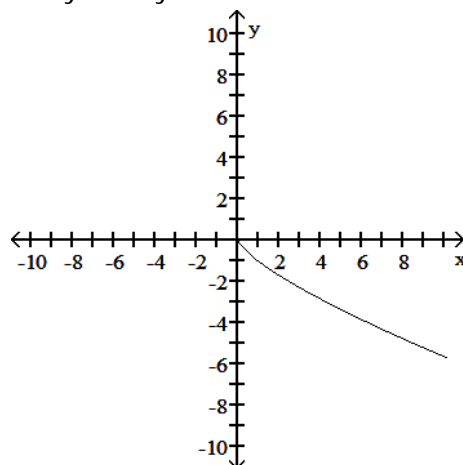
39) _____



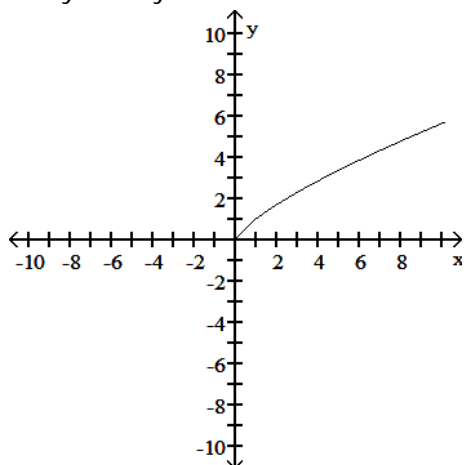
A) Symmetric about the y-axis



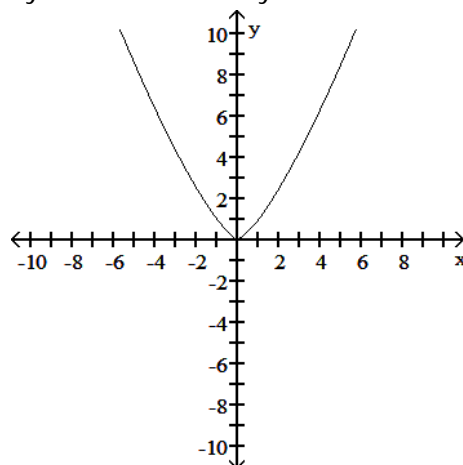
B) No symmetry



C) No symmetry



D) Symmetric about the y-axis



Answer: A

Diff: 0 Type: BI

Determine if the function is even, odd, or neither.

40) $g(x) = |7x^7|$

A) Even

B) Odd

C) Neither

40) _____

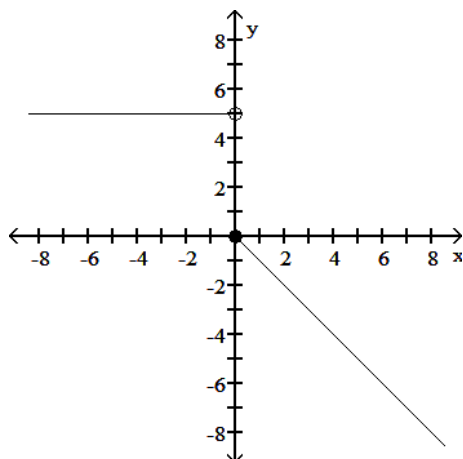
Answer: A

Diff: 0 Type: BI

Find a formula for the function graphed.

41)

41) _____



A) $f(x) = \begin{cases} 5, & x < 0 \\ x, & x \geq 0 \end{cases}$

B) $f(x) = \begin{cases} 5, & x \leq 0 \\ -x, & x > 0 \end{cases}$

C) $f(x) = \begin{cases} 5, & x < 0 \\ -5x, & x \geq 0 \end{cases}$

D) $f(x) = \begin{cases} 5, & x < 0 \\ -x, & x \geq 0 \end{cases}$

Answer: D

Diff: 0 Type: BI

Determine if the function is even, odd, or neither.

42) $f(x) = 7x^4 + 6x + 3$

A) Even

B) Odd

C) Neither

42) _____

Answer: C

Diff: 0 Type: BI

Solve the problem.

43) The kinetic energy K of a mass is proportional to the square of its velocity v . If $K = 5780$ joules when $v = 17$ m/sec, what is K when $v = 13$ m/sec?

A) 1690 joules

B) 4225 joules

C) 5070 joules

D) 3380 joules

43) _____

Answer: D

Diff: 0 Type: BI

Find the domain and range of the function.

44) $g(z) = \sqrt{16 - z^2}$

A) D: $[-4, 4]$, R: $[0, 4]$

C) D: $(-4, 4)$, R: $(-4, 4)$

B) D: $(-\infty, \infty)$, R: $(0, 4)$

D) D: $[0, \infty)$, R: $(-\infty, \infty)$

44) _____

Answer: A

Diff: 0 Type: BI

Provide an appropriate response.

45) Graph the functions $f(x) = \frac{4}{x-1}$ and $g(x) = \frac{3}{x+1}$ together to identify the values of x for which

45) _____

$\frac{4}{x-1} < \frac{3}{x+1}$. Confirm your findings algebraically.

A) $(-7, \infty)$

B) $(-\infty, -7)$

C) $(-7, -1) \cup (1, \infty)$

D) $(-1, 1) \cup (1, \infty)$

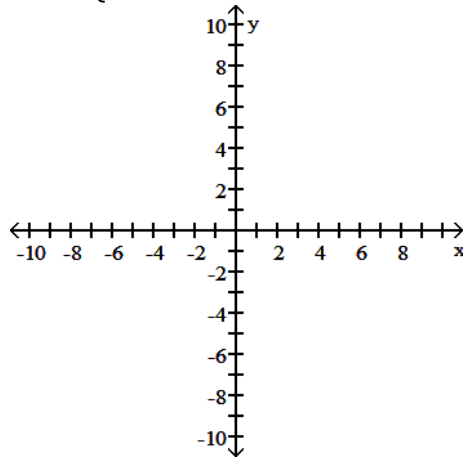
Answer: B

Diff: 0 Type: BI

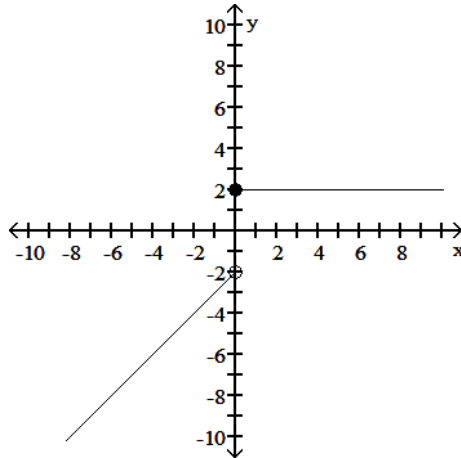
Graph the function.

46) $G(x) = \begin{cases} |x| + 2, & x < 0 \\ 2, & x \geq 0 \end{cases}$

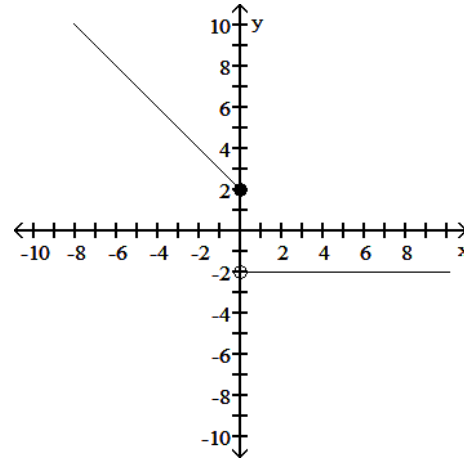
46) _____

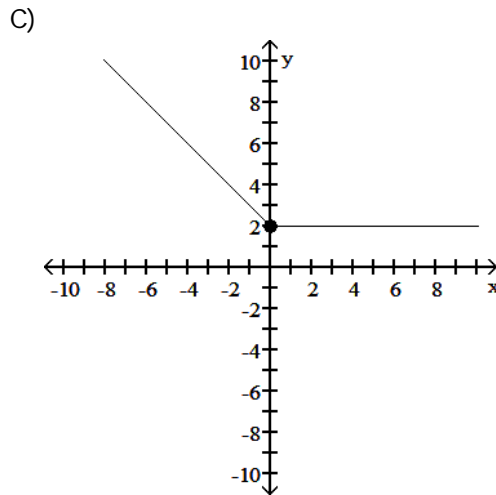


A)



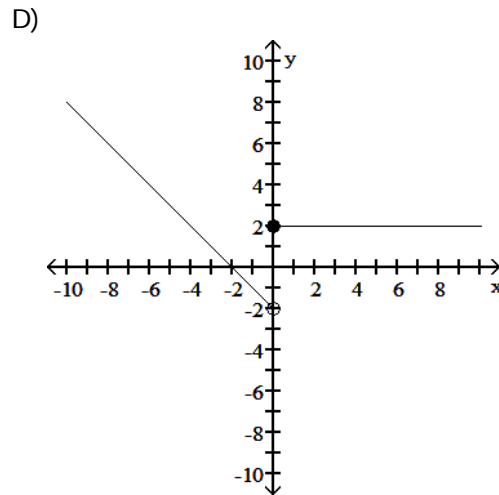
B)





Answer: C

Diff: 0 Type: BI



Find the domain and range of the function.

47) $F(t) = \frac{3}{\sqrt{t}}$

A) D: $(-\infty, 0)$, R: $(-\infty, 0)$

C) D: $[0, \infty)$, R: $(-\infty, \infty)$

Answer: D

Diff: 0 Type: BI

B) D: $(-\infty, \infty)$, R: $(-\infty, \infty)$

D) D: $(0, \infty)$, R: $(0, \infty)$

47) _____

Determine if the function is even, odd, or neither.

48) $f(x) = \frac{5}{x-3}$

A) Even

B) Odd

C) Neither

Answer: C

Diff: 0 Type: BI

48) _____

Provide an appropriate response.

49) What is the domain of the function $y = \sqrt{1 - \frac{1}{x}}$?

A) $(-\infty, 0) \cup (1, \infty)$

B) $(0, 1]$

C) $(-\infty, \infty)$

D) $(-\infty, 0) \cup [1, \infty)$

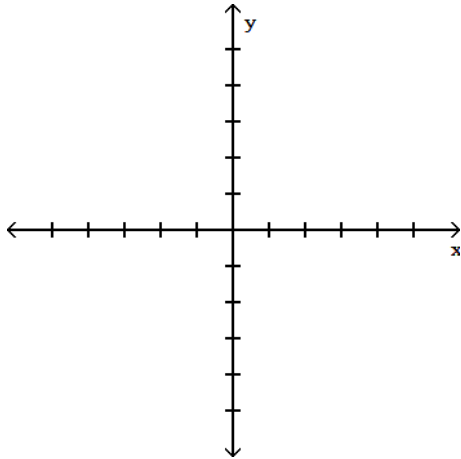
Answer: D

Diff: 0 Type: BI

49) _____

50) Graph the equation $|x| + |y| = 1$ and decide whether or not the graph represents a function of x .

50) _____



A) Function

B) Not a Function

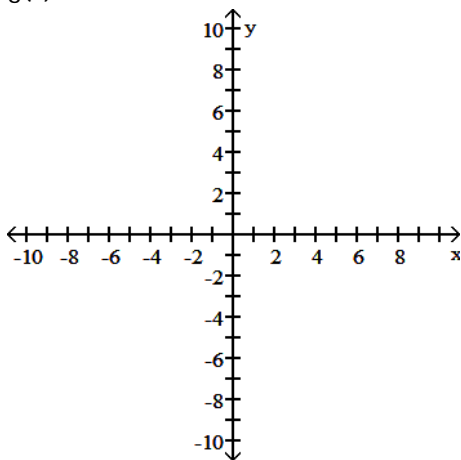
Answer: B

Diff: 0 Type: BI

Find the domain and graph the function.

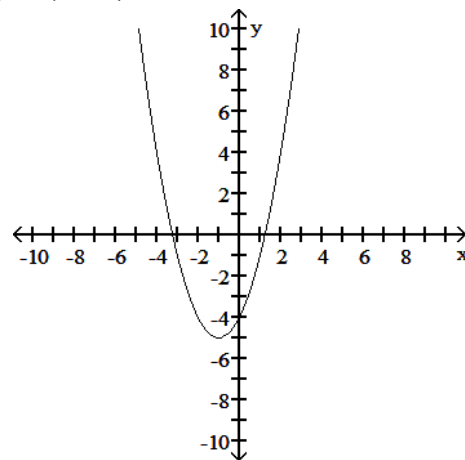
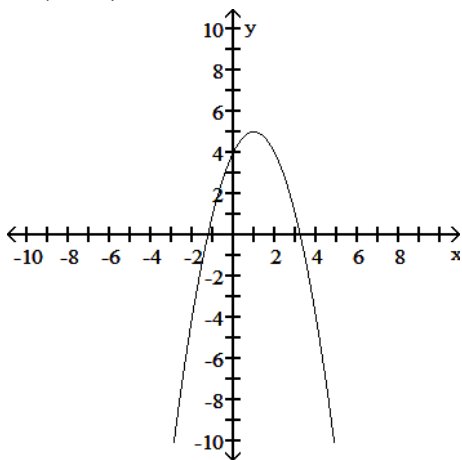
51) $g(x) = -4 + 2x - x^2$

51) _____

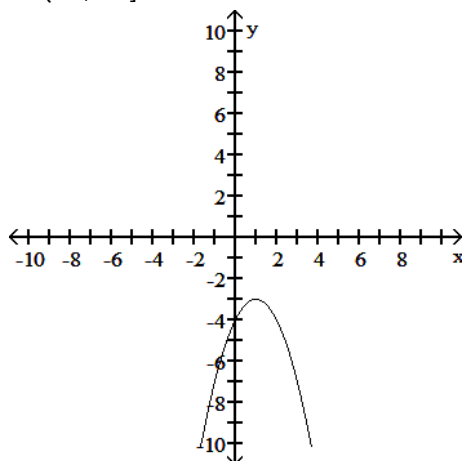


A) D: $(-\infty, \infty)$

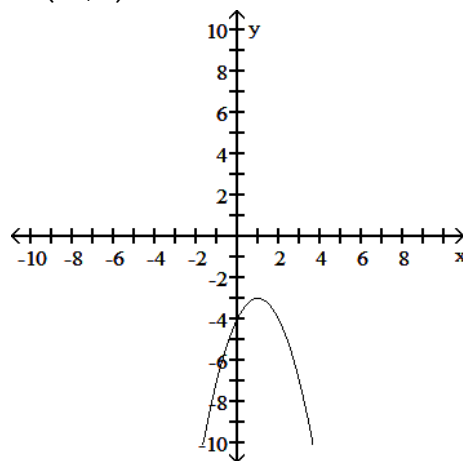
B) D: $(-\infty, \infty)$



C) $D: (-\infty, -3]$



D) $D: (-\infty, \infty)$

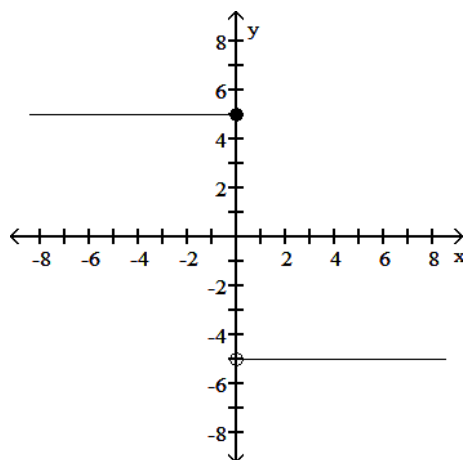


Answer: D

Diff: 0 Type: BI

Find a formula for the function graphed.

52)



52) _____

A) $f(x) = \begin{cases} 5, & x < 0 \\ -5, & x \geq 0 \end{cases}$

B) $f(x) = \begin{cases} 5, & x \leq 0 \\ -5, & x > 0 \end{cases}$

C) $f(x) = \begin{cases} -5, & x \leq 0 \\ 5, & x > 0 \end{cases}$

D) $f(x) = \begin{cases} 5x, & x \leq 0 \\ -5x, & x > 0 \end{cases}$

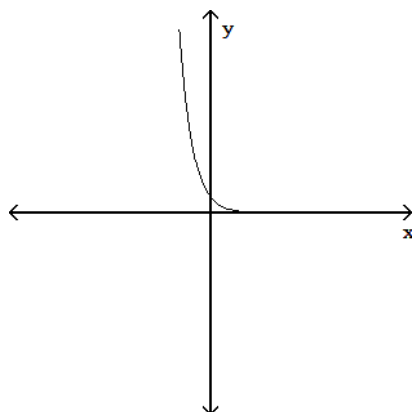
Answer: B

Diff: 0 Type: BI

Determine whether or not the graph is a graph of a function of x .

53)

53) _____



A) Function

B) Not a function

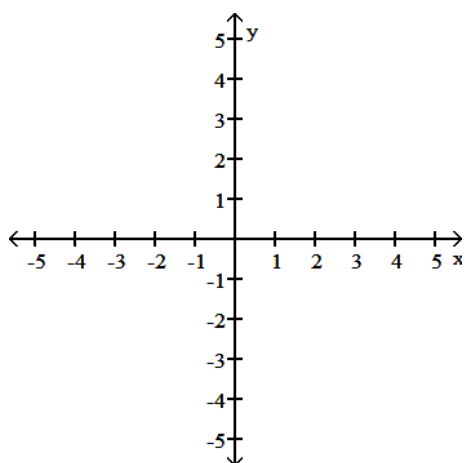
Answer: A

Diff: 0 Type: BI

Graph the function. Specify the intervals over which the function is increasing and the intervals where it is decreasing.

54) $y = -\frac{1}{x^2}$

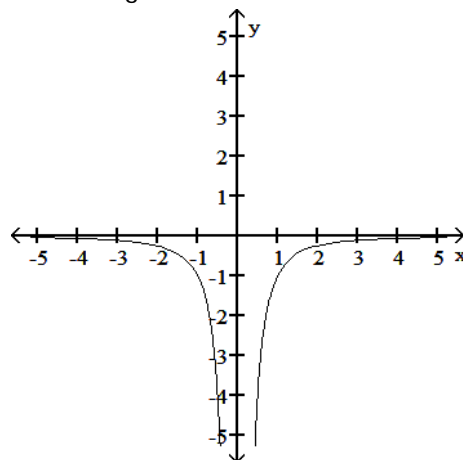
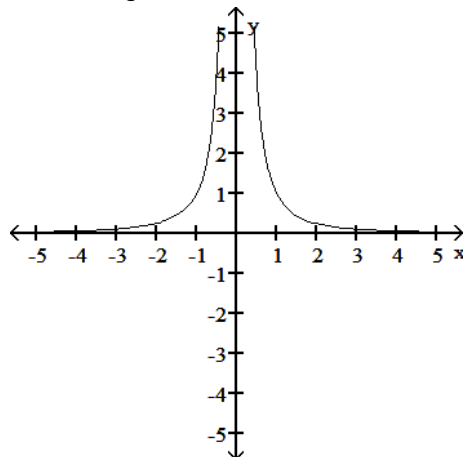
54) _____



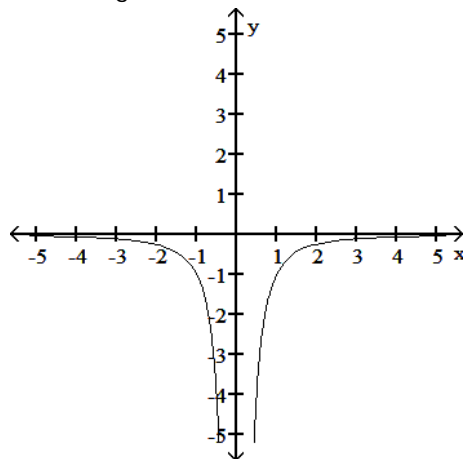
A) Increasing $-\infty < x < 0$

Decreasing $0 < x < \infty$

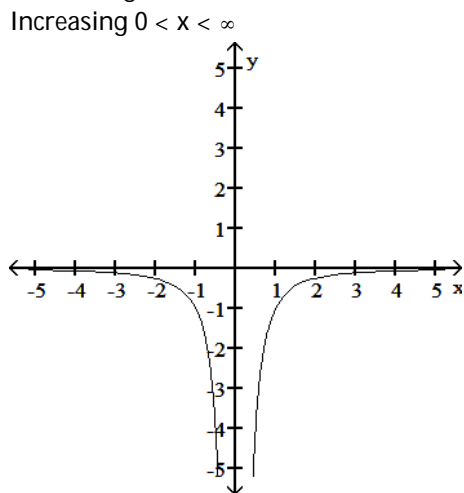
B) Decreasing $-\infty < x < 0$ and $0 < x < \infty$



C) Increasing $-\infty < x < 0$ and $0 < x < \infty$



D) Decreasing $-\infty < x < 0$



Answer: D

Diff: 0 Type: BI

Determine if the function is even, odd, or neither.

55) $g(x) = \frac{-3x}{x^2 - 4}$

55) _____

A) Even

B) Odd

C) Neither

Answer: B

Diff: 0 Type: BI

Find the formula for the function.

56) A point P in the fourth quadrant lies on the graph of the function $f(x) = -x^2$. Express the slope of the line joining P to the origin as a function of x.

56) _____

A) $m = \frac{1}{x}$

B) $m = -2x$

C) $m = x$

D) $m = -x$

Answer: D

Diff: 0 Type: BI

Determine if the function is even, odd, or neither.

57) $f(x) = \frac{9}{x^2 - 9}$

57) _____

A) Even

B) Odd

C) Neither

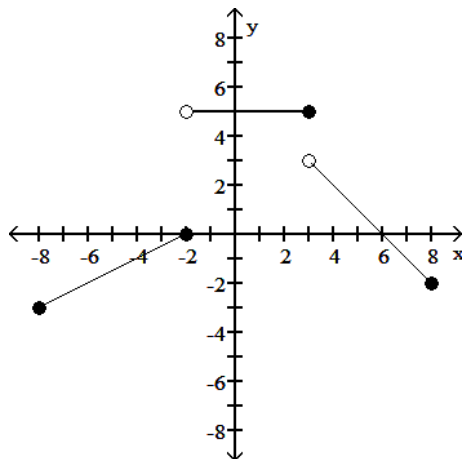
Answer: A

Diff: 0 Type: BI

Find a formula for the function graphed.

58)

58) _____



$$\text{A) } f(x) = \begin{cases} \frac{1}{2}x + 1, & -8 < x \leq -2 \\ 5, & -2 < x \leq 3 \\ 6 - x, & 3 < x < 8 \end{cases}$$

$$\text{B) } f(x) = \begin{cases} \frac{1}{2}x + 1, & -8 \leq x \leq -2 \\ 5, & -2 < x < 3 \\ 6 - x, & 3 \leq x \leq 8 \end{cases}$$

$$\text{C) } f(x) = \begin{cases} \frac{1}{2}x + 1, & -8 \leq x \leq -2 \\ 5, & -2 < x \leq 3 \\ 6 - x, & 3 < x \leq 8 \end{cases}$$

$$\text{D) } f(x) = \begin{cases} -\frac{1}{2}x + 1, & -8 \leq x \leq -2 \\ 5, & -2 < x \leq 3 \\ x - 6, & 3 < x \leq 8 \end{cases}$$

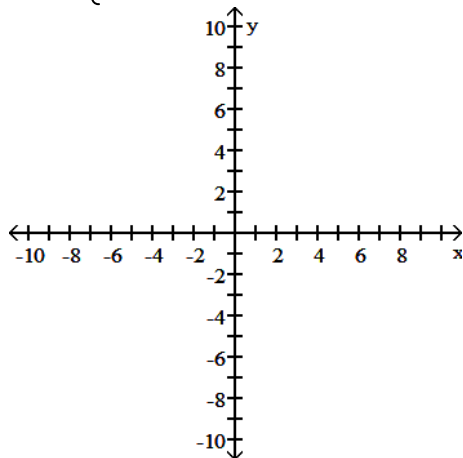
Answer: C

Diff: 0 Type: BI

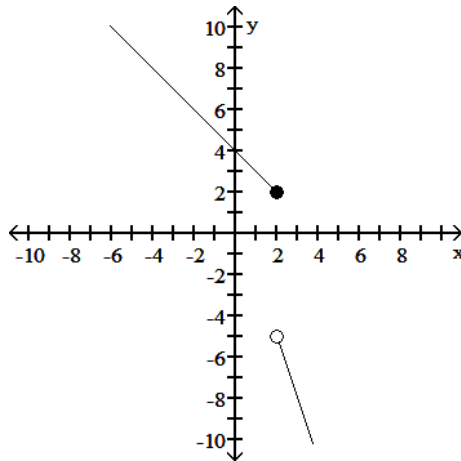
Graph the function.

$$59) F(x) = \begin{cases} 4 - x, & x \leq 2 \\ 1 - 3x, & x > 2 \end{cases}$$

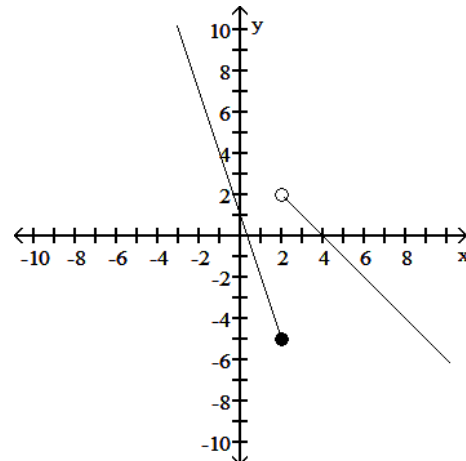
59) _____



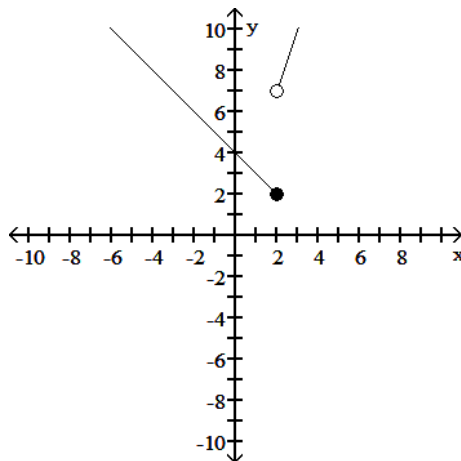
A)



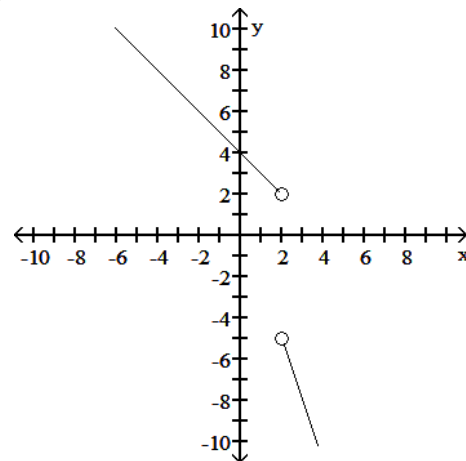
B)



C)



D)



Answer: A

Diff: 0 Type: BI

Determine if the function is even, odd, or neither.

60) $f(x) = -7x^5 + 4x^3$

A) Even

B) Odd

C) Neither

60) _____

Answer: B

Diff: 0 Type: BI

Find the domain and range of the function.

61) $g(z) = -7 - \sqrt{z}$

A) D: $[0, \infty)$, R: $(-\infty, -7]$ C) D: $(-\infty, \infty)$, R: $(-\infty, -7]$ B) D: $(-\infty, -7]$, R: $(-\infty, \infty)$ D) D: $(-\infty, 0]$, R: $[-7, \infty)$

61) _____

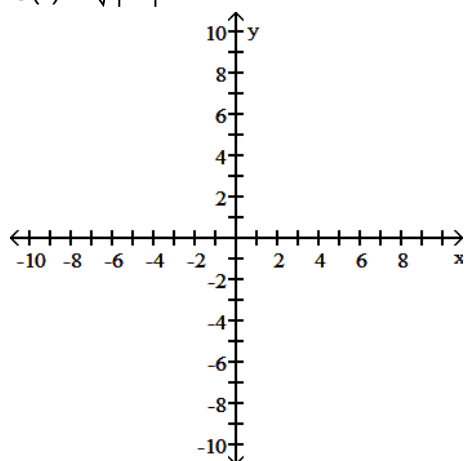
Answer: A

Diff: 0 Type: BI

Find the domain and graph the function.

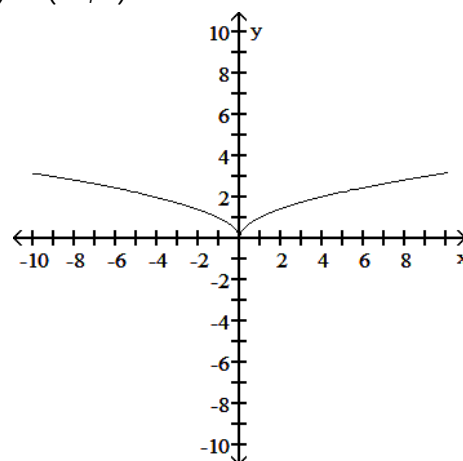
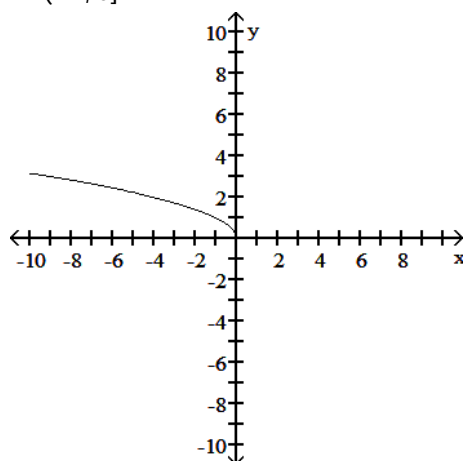
62) $G(x) = \sqrt{|x|}$

62) _____



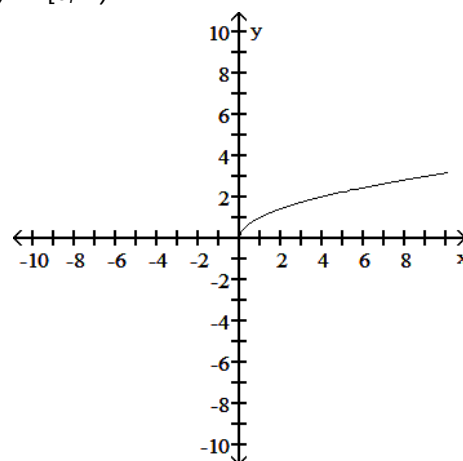
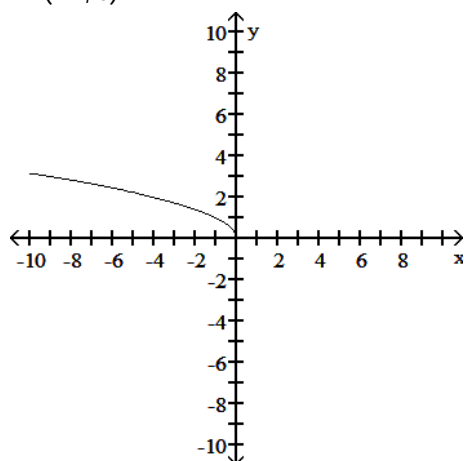
A) $D: (-\infty, 0]$

B) $D: (-\infty, \infty)$



C) $D: (-\infty, 0)$

D) $D: [0, \infty)$



Answer: B

Diff: 0 Type: BI

Determine if the function is even, odd, or neither.

63) $h(t) = \sqrt{t^2 - 4}$

63) _____

A) Even

B) Odd

C) Neither

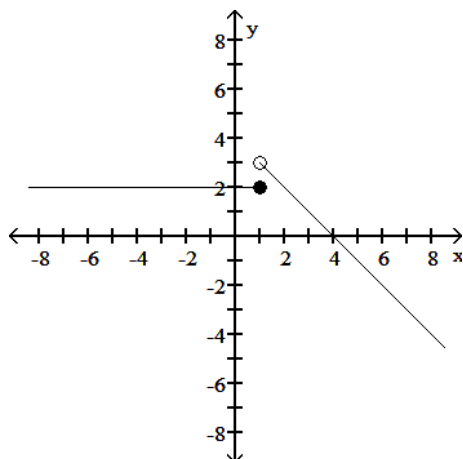
Answer: A

Diff: 0 Type: BI

Find a formula for the function graphed.

64)

64) _____



A) $f(x) = \begin{cases} 2, & x \leq 1 \\ 4 - x, & x > 1 \end{cases}$

B) $f(x) = \begin{cases} 2, & x < 0 \\ 4 - x, & x \geq 0 \end{cases}$

C) $f(x) = \begin{cases} 2, & x < 1 \\ 4 - x, & x > 1 \end{cases}$

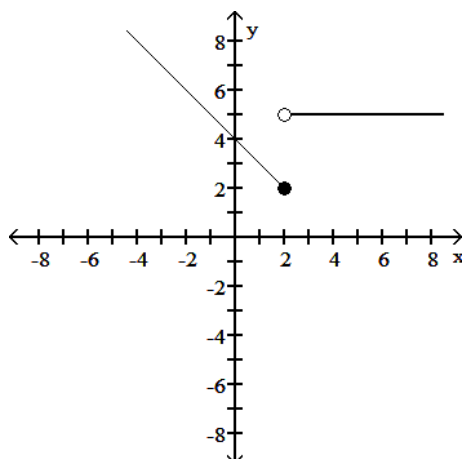
D) $f(x) = \begin{cases} 2, & x < 1 \\ x - 4, & x \geq 1 \end{cases}$

Answer: A

Diff: 0 Type: BI

65)

65) _____



A) $f(x) = \begin{cases} 4 - x, & x \leq 2 \\ 5, & x > 2 \end{cases}$

B) $f(x) = \begin{cases} 4 + x, & x \leq 2 \\ 5, & x > 2 \end{cases}$

C) $f(x) = \begin{cases} 4 + x, & x < 2 \\ 5, & x > 2 \end{cases}$

D) $f(x) = \begin{cases} 4 - x, & x < 2 \\ 5, & x \geq 2 \end{cases}$

Answer: A

Diff: 0 Type: BI

Provide an appropriate response.

66) For what values of x is $\lceil x \rceil = -2$?

A) $-3 < x \leq -2$

B) $-2 \leq x < -1$

C) $-2 < x \leq -1$

D) $-3 \leq x < -2$

66) _____

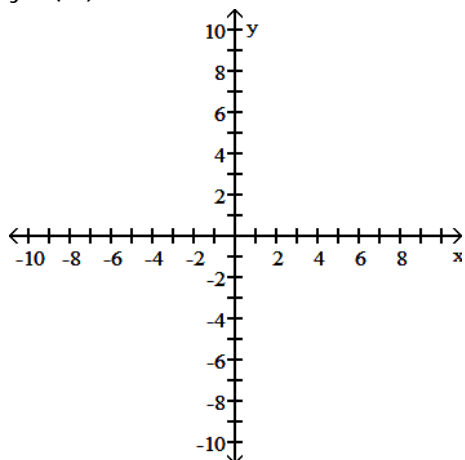
Answer: A

Diff: 0 Type: BI

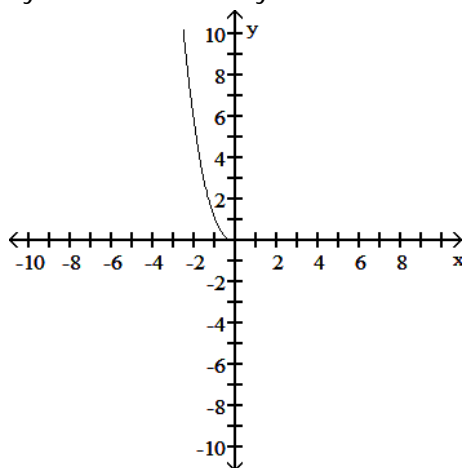
Graph the function. Determine the symmetry, if any, of the function.

67) $y = (-x)^{5/2}$

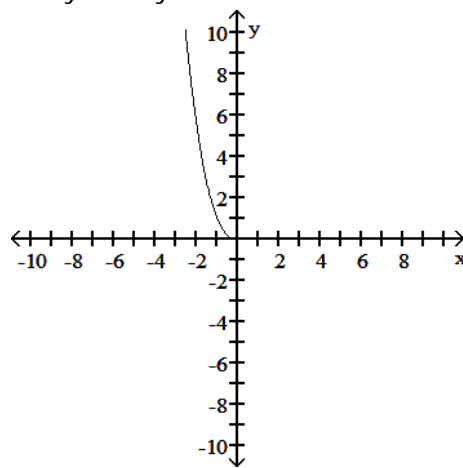
67) _____



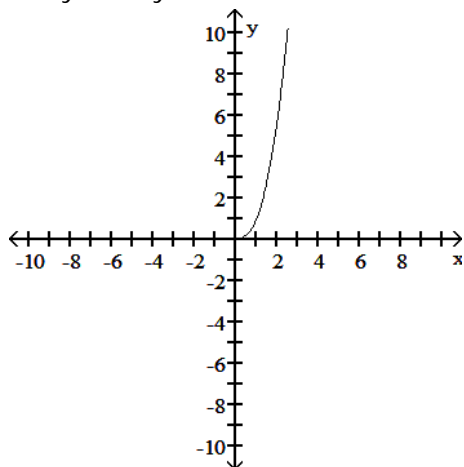
A) Symmetric about the y-axis



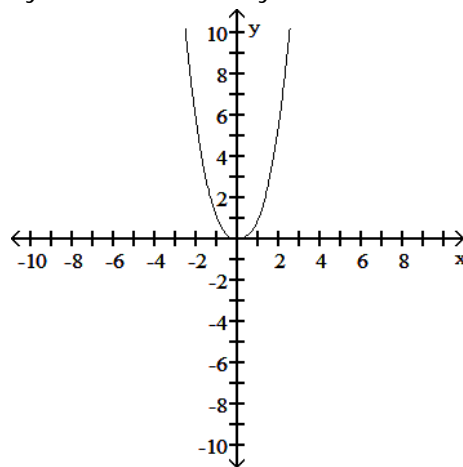
B) No symmetry



C) No symmetry



D) Symmetric about the y-axis



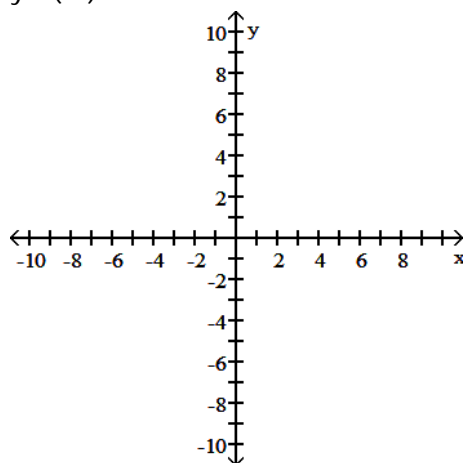
Answer: B

Diff: 0 Type: BI

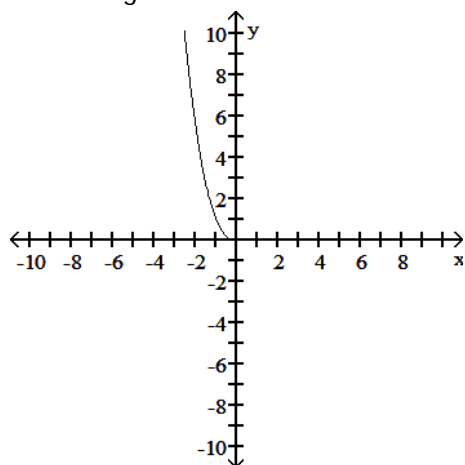
Graph the function. Specify the intervals over which the function is increasing and the intervals where it is decreasing.

68) $y = (-x)^{5/2}$

68) _____

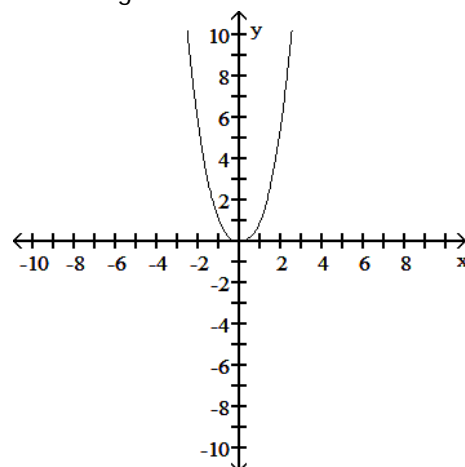


A) Decreasing $-\infty < x \leq 0$

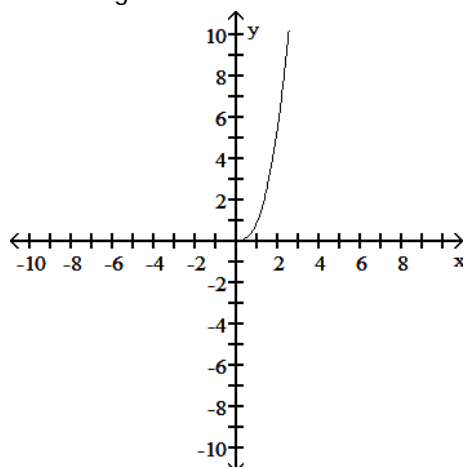


B) Decreasing $-\infty < x \leq 0$

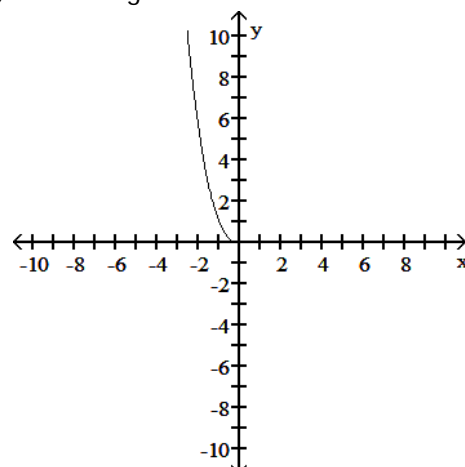
Increasing $0 \leq x < \infty$



C) Increasing $0 \leq x < \infty$



D) Decreasing $-\infty < x < \infty$



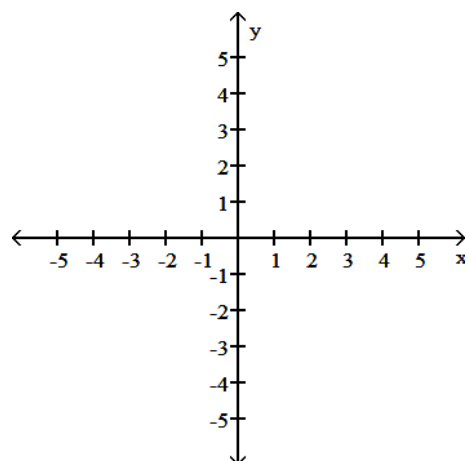
Answer: A

Diff: 0 Type: BI

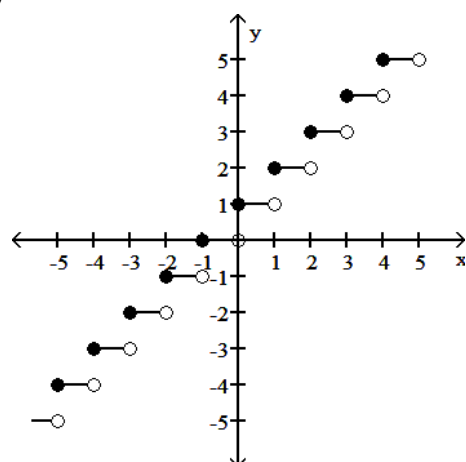
Provide an appropriate response.

69) Graph the function $f(x) = \lceil x \rceil$.

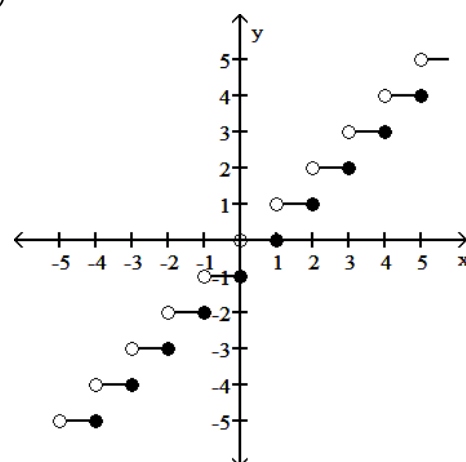
69) _____



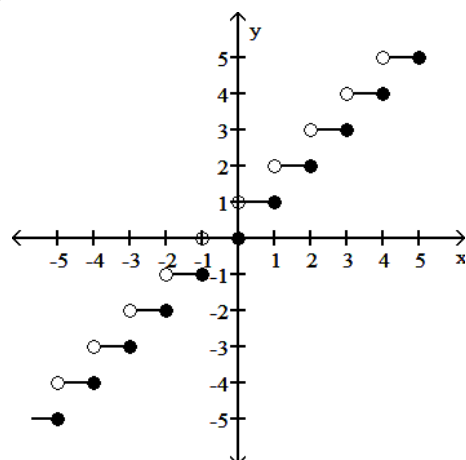
A)



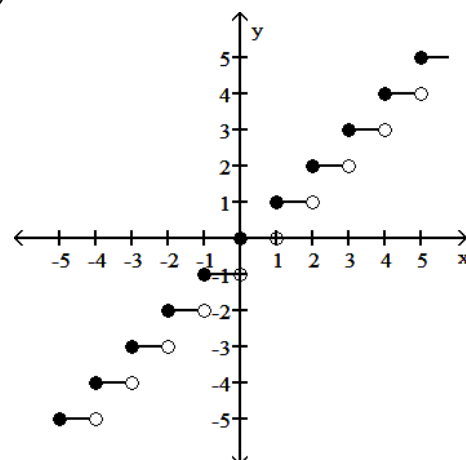
B)



C)



D)

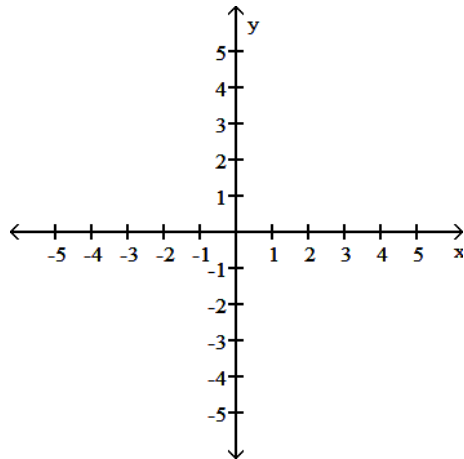


Answer: C

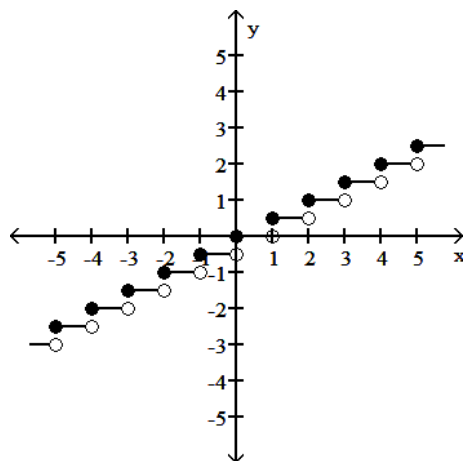
Diff: 0 Type: BI

70) Graph the function $f(x) = \lfloor x \rfloor$.

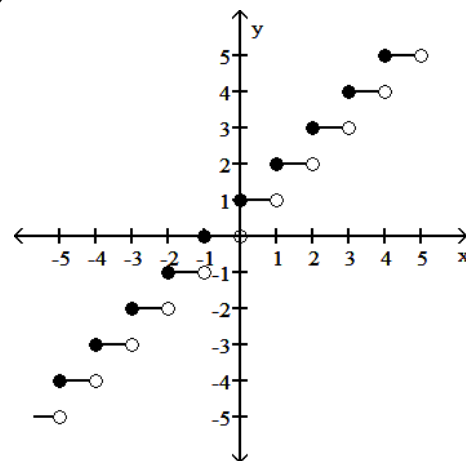
70) _____



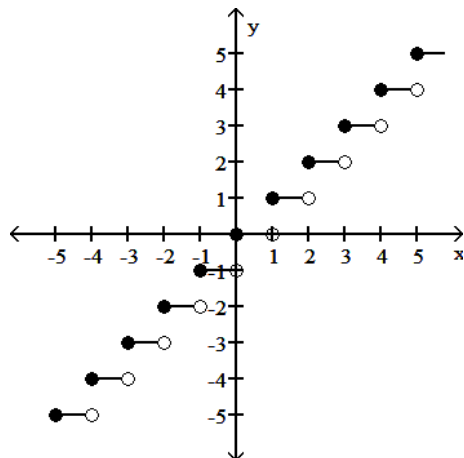
A)



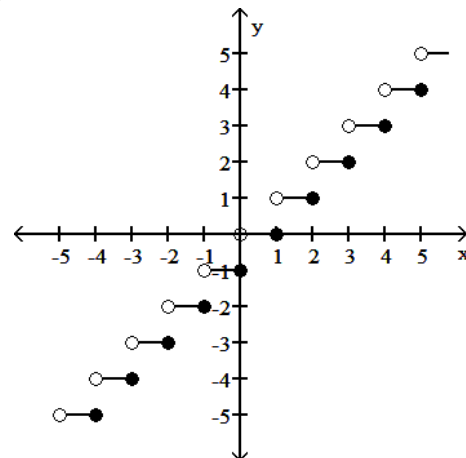
B)



C)



D)



Answer: C

Diff: 0 Type: BI

Solve the problem.

- 71) Boyle's Law says that volume V of a gas at constant temperature increases whenever the pressure P decreases, so that V and P are inversely proportional. If $P = 14.6 \text{ lbs/in}^2$ when $V = 800 \text{ in}^3$, then what is V when $P = 22 \text{ lbs/in}^2$? 71) _____

- A) $\frac{803}{2000} \text{ in}^3$ B) $\frac{2000}{803} \text{ in}^3$ C) $\frac{5840}{11} \text{ in}^3$ D) $\frac{88000}{73} \text{ in}^3$

Answer: C

Diff: 0 Type: BI

Find the domain and range of the function.

- 72) $f(x) = -5 + \sqrt{x}$ 72) _____

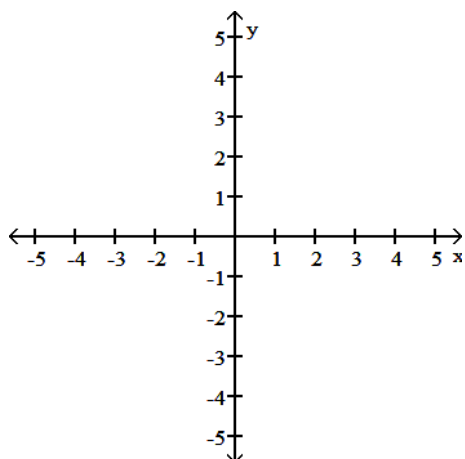
- A) D: $(-\infty, 0]$, R: $(-\infty, -5]$ B) D: $[0, \infty)$, R: $(-\infty, \infty)$
C) D: $(-\infty, \infty)$, R: $[-5, \infty)$ D) D: $[0, \infty)$, R: $[-5, \infty)$

Answer: D

Diff: 0 Type: BI

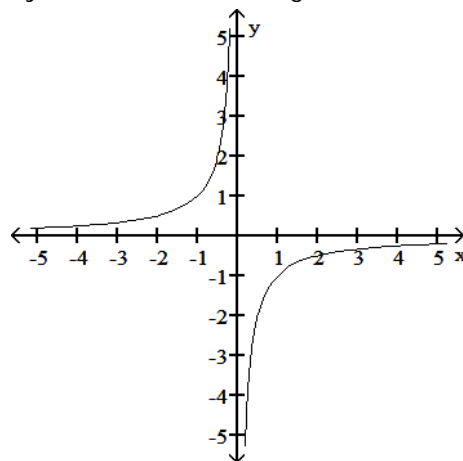
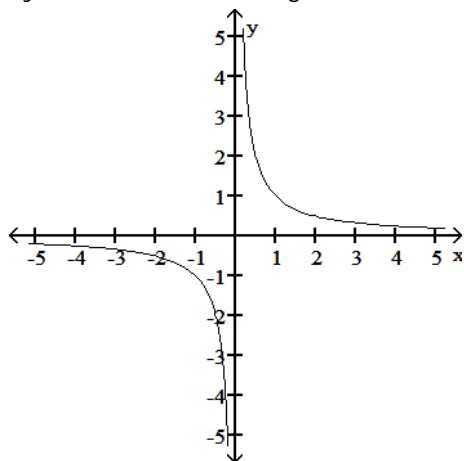
Graph the function. Determine the symmetry, if any, of the function.

- 73) $y = \frac{1}{x}$ 73) _____

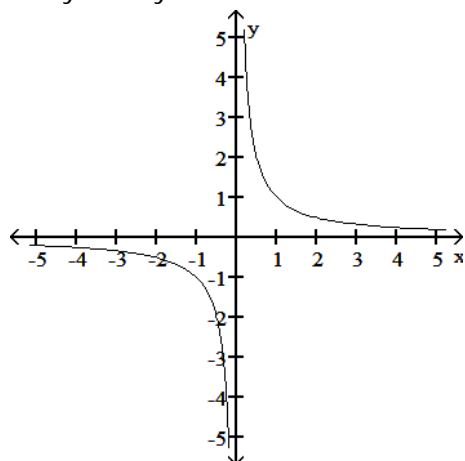


A) Symmetric about the origin

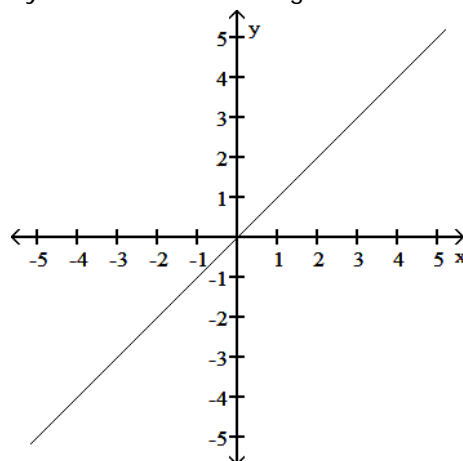
B) Symmetric about the origin



C) No symmetry



D) Symmetric about the origin

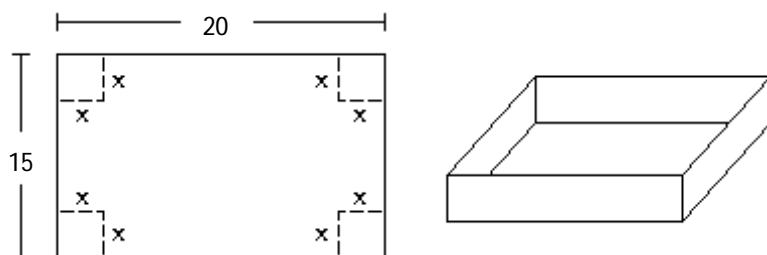


Answer: A

Diff: 0 Type: BI

Solve the problem.

- 74) A box with an open top is to be constructed from a rectangular piece of cardboard with dimensions 15 inches by 20 inches by cutting out equal squares of side x at each corner and then folding up the sides as in the figure. Express the volume V of the box as a function of x . 74) _____



A) $V(x) = (15 - 2x)(20 - 2x)$

B) $V(x) = x(15 - x)(20 - x)$

C) $V(x) = x(15 - 2x)(20 - 2x)$

D) $V(x) = (15 - x)(20 - x)$

Answer: C

Diff: 0 Type: BI

Find the formula for the function.

- 75) Express the perimeter of an isosceles triangle with side lengths x , $5x$, and $5x$ as a function of the side length. 75) _____

A) $p = 11x$

B) $p = 10x^3$

C) $p = 25x^3$

D) $p = 10x$

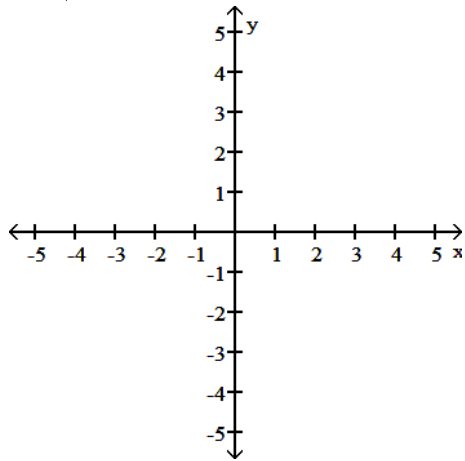
Answer: A

Diff: 0 Type: BI

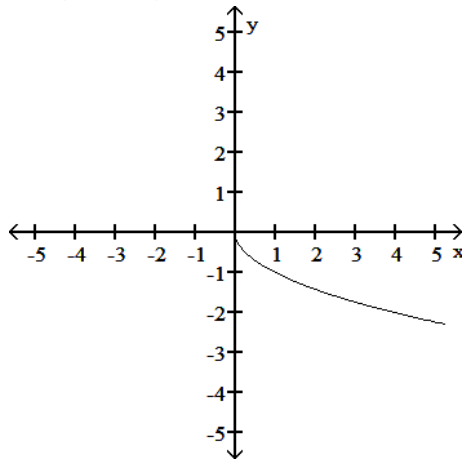
Graph the function. Determine the symmetry, if any, of the function.

76) $y = \sqrt{-x}$

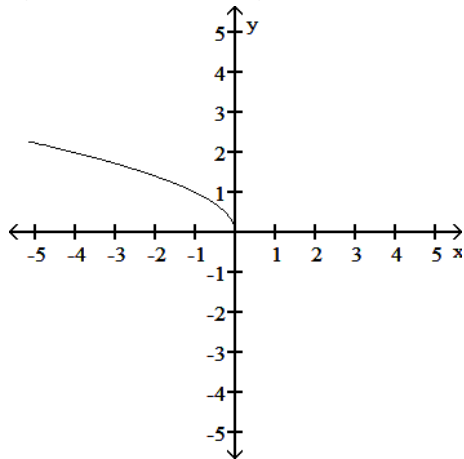
76) _____



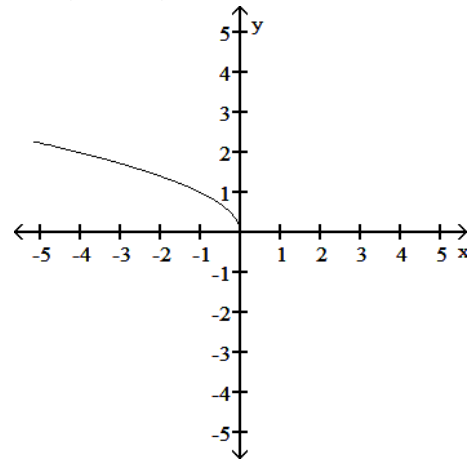
A) No symmetry



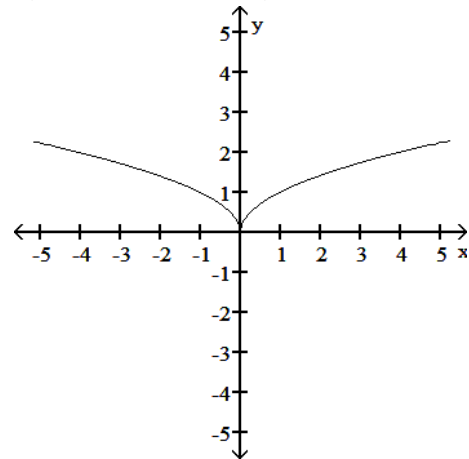
C) Symmetric about the y-axis



B) No symmetry



D) Symmetric about the y-axis



Answer: B

Diff: 0 Type: BI

Determine if the function is even, odd, or neither.

77) $f(x) = -2$

77) _____

A) Even

B) Odd

C) Neither

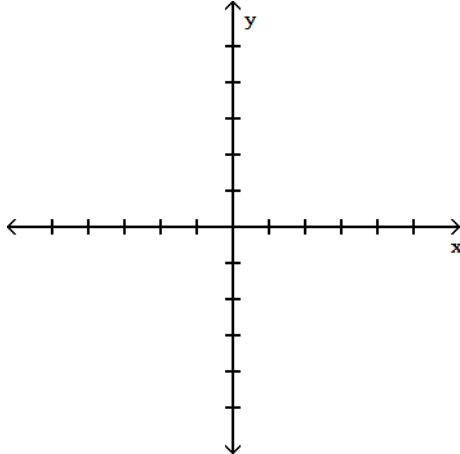
Answer: A

Diff: 0 Type: BI

Provide an appropriate response.

78) Graph the equation $|y| = x$ and decide whether or not the graph represents a function of x .

78) _____



A) Function

B) Not a Function

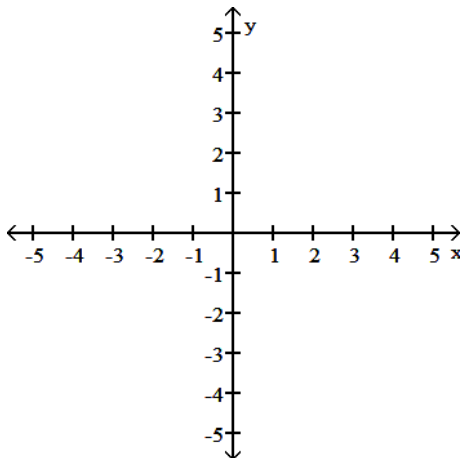
Answer: B

Diff: 0 Type: BI

Graph the function. Determine the symmetry, if any, of the function.

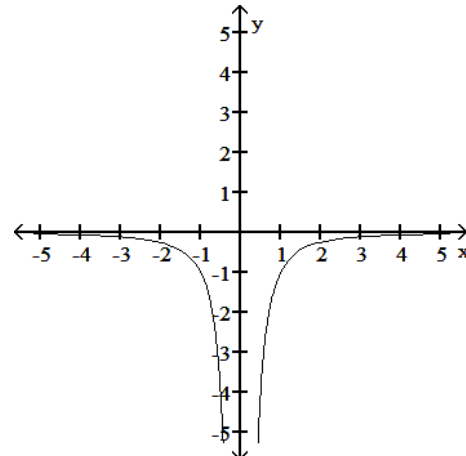
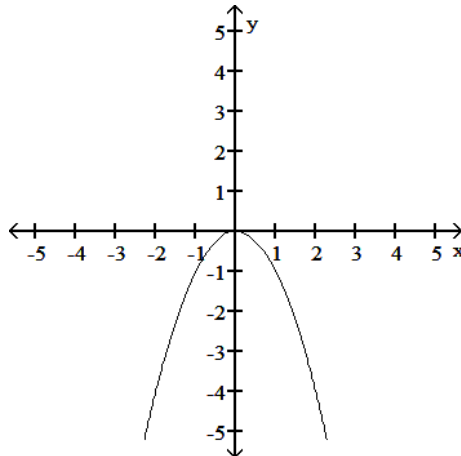
79) $y = -\frac{1}{x^2}$

79) _____

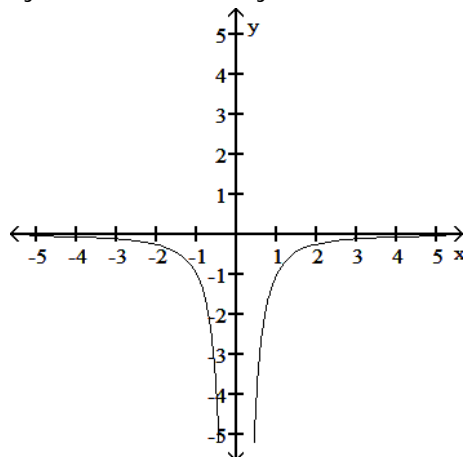


A) Symmetric about the y-axis

B) No symmetry



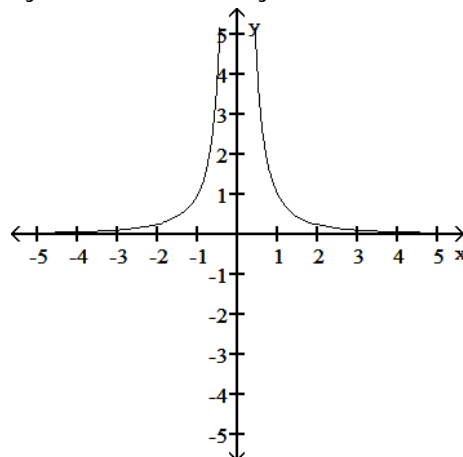
C) Symmetric about the y-axis



Answer: C

Diff: 0 Type: BI

D) Symmetric about the y-axis



Provide an appropriate response.

80) Graph the functions $f(x) = \frac{x}{3}$ and $g(x) = 1 + \frac{4}{3x}$ together to identify the values of x for which $\frac{x}{3} > 1 + \frac{4}{3x}$. 80) _____

Confirm your findings algebraically.

A) $(-1, 0) \cup (4, \infty)$

B) $(-\infty, -1) \cup (0, 4)$

C) $(4, \infty)$

D) $(-1, 4)$

Answer: A

Diff: 0 Type: BI

Find the domain and range of the function.

81) $f(x) = \frac{9}{8 + \sqrt{x}}$ 81) _____

A) D: $[0, \infty)$, R: $(-\infty, \infty)$

B) D: $(-\infty, \infty)$, R: $\left[0, \frac{9}{8}\right]$

C) D: $(-\infty, 0]$, R: $(-\infty, 0]$

D) D: $[0, \infty)$, R: $\left[0, \frac{9}{8}\right]$

Answer: D

Diff: 0 Type: BI

Provide an appropriate response.

82) What real numbers x satisfy the equation $\lfloor x \rfloor = \lceil x \rceil$? 82) _____

A) $\{x \mid x \in \text{integers}\}$

B) $\{x \mid x = 0\}$

C) $\{x \mid x \in \text{real numbers}\}$

D) \emptyset

Answer: A

Diff: 0 Type: BI

83) Consider the function $y = \sqrt{1 - \frac{1}{x}}$. Can x be greater than 1? 83) _____

A) Yes

B) No

Answer: A

Diff: 0 Type: BI

Find the domain and range of the function.

84) $f(x) = -7 - x^2$

A) D: $(-\infty, \infty)$, R: $(-\infty, -7]$

C) D: $(-\infty, \infty)$, R: $(-\infty, \infty)$

B) D: $(-\infty, \infty)$, R: $[-7, \infty)$

D) D: $(-\infty, -7]$, R: $(-\infty, \infty)$

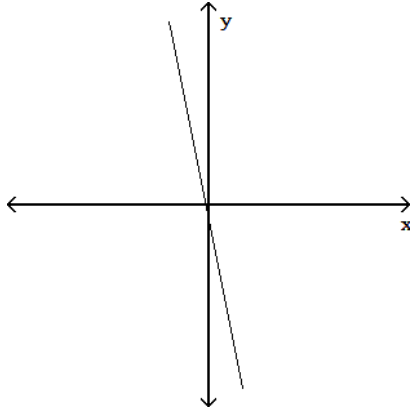
Answer: A

Diff: 0 Type: BI

84) _____

Determine whether or not the graph is a graph of a function of x.

85)



A) Not a function

B) Function

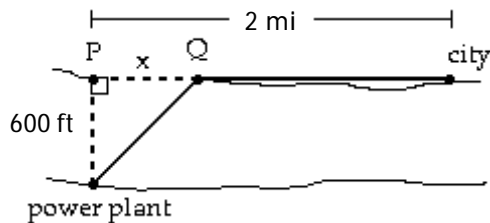
Answer: B

Diff: 0 Type: BI

85) _____

Solve the problem.

- 86) A power plant is located on a river that is 600 feet wide. To lay a new cable from the plant to a location in a city 2 miles downstream on the opposite side costs \$175 per foot across the river and \$125 per foot along the land. Suppose that the cable goes from the plant to a point Q on the opposite side that is x feet from the point P directly opposite the plant. Write a function $C(x)$ that gives the cost of laying the cable in terms of the distance x.



A) $C(x) = 175\sqrt{x^2 + 600^2} + 125(2 - x)$

C) $C(x) = 175\sqrt{x^2 + 600^2} + 125(10,560 - x)$

B) $C(x) = 175(600 - x) + 125(2 - x)$

D) $C(x) = 125\sqrt{x^2 + 600^2} + 175(10,560 - x)$

Answer: C

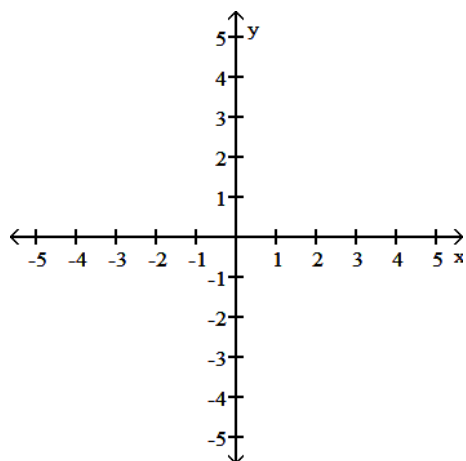
Diff: 0 Type: BI

86) _____

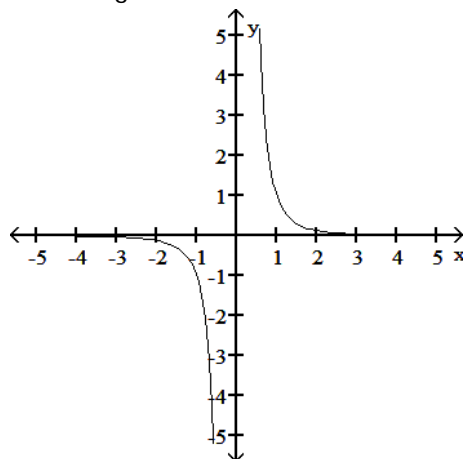
Graph the function. Specify the intervals over which the function is increasing and the intervals where it is decreasing.

87) $y = \frac{1}{x^3}$

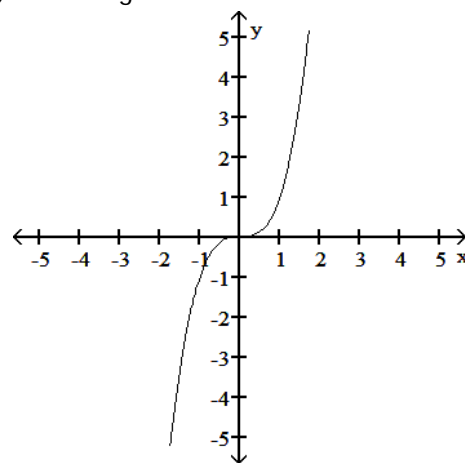
87) _____



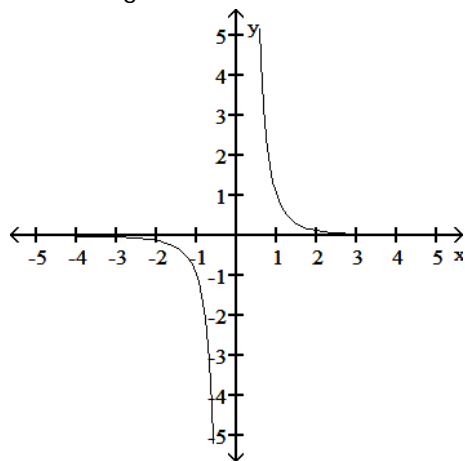
A) Decreasing $-\infty < x < 0$;
Increasing $0 < x < \infty$



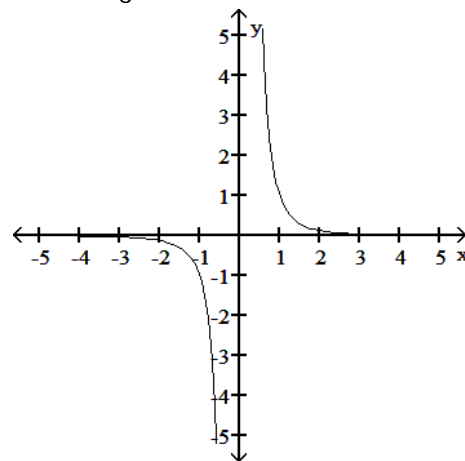
B) Increasing $-\infty < x < \infty$



C) Decreasing $-\infty < x < 0$ and $0 < x < \infty$



D) Increasing $-\infty < x < 0$ and $0 < x < \infty$



Answer: C

Diff: 0 Type: BI

Find the formula for the function.

88) Express the length d of a square's diagonal as a function of its side length x .

88) _____

A) $d = x\sqrt{3}$

B) $d = x\sqrt{2}$

C) $d = 2x$

D) $d = x$

Answer: B

Diff: 0 Type: BI

89) A point P in the first quadrant lies on the graph of the function $f(x) = x^2$. Express the slope of the line joining P to the origin as a function of x .

89) _____

A) $m = \frac{2}{x}$

B) $m = \frac{1}{x}$

C) $m = 2x$

D) $m = x$

Answer: D

Diff: 0 Type: BI

Solve the problem.

90) The variable s is proportional to t , and $s = 60$ when $t = 180$. Determine t when $s = 85$.

90) _____

A) 255

B) 340

C) 245

D) 3

Answer: A

Diff: 0 Type: BI

Answer Key

Testname: CH1 1

- 1) B
Diff: 0 Page Ref:
Topic:
- 2) B
Diff: 0 Page Ref:
Topic:
- 3) B
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Topic:
- 4) B
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- 5) A
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- 6) B
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Topic:
- 7) A
Diff: 0 Page Ref:
Topic:
- 8) D
Diff: 0 Page Ref:
Topic:
- 9) B
Diff: 0 Page Ref:
Topic:
- 10) D
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Topic:
- 11) A
Diff: 0 Page Ref:
Topic:
- 12) A
Diff: 0 Page Ref:
Topic:
- 13) B
Diff: 0 Page Ref:
Topic:
- 14) A
Diff: 0 Page Ref:
Topic:
- 15) A
Diff: 0 Page Ref:
Topic:
- 16) A
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Topic:

Answer Key

Testname: CH1 1

17) A

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Topic:

18) C

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Topic:

19) B

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Topic:

20) B

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Topic:

21) B

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Topic:

22) D

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Topic:

23) A

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Topic:

24) B

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Topic:

25) B

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Topic:

26) C

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Topic:

27) B

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Topic:

28) A

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Topic:

29) A

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Topic:

30) C

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Topic:

31) C

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Topic:

32) B

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Topic:

Answer Key

Testname: CH1 1

- 33) A
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Topic:
- 34) C
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Topic:
- 35) A
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Topic:
- 36) B
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Topic:
- 37) D
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Topic:
- 38) A
Diff: 0 Page Ref:
Topic:
- 39) A
Diff: 0 Page Ref:
Topic:
- 40) A
Diff: 0 Page Ref:
Topic:
- 41) D
Diff: 0 Page Ref:
Topic:
- 42) C
Diff: 0 Page Ref:
Topic:
- 43) D
Diff: 0 Page Ref:
Topic:
- 44) A
Diff: 0 Page Ref:
Topic:
- 45) B
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Topic:
- 46) C
Diff: 0 Page Ref:
Topic:
- 47) D
Diff: 0 Page Ref:
Topic:
- 48) C
Diff: 0 Page Ref:
Topic:

Answer Key

Testname: CH1 1

- 49) D
Diff: 0 Page Ref:
Topic:
- 50) B
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Topic:
- 51) D
Diff: 0 Page Ref:
Topic:
- 52) B
Diff: 0 Page Ref:
Topic:
- 53) A
Diff: 0 Page Ref:
Topic:
- 54) D
Diff: 0 Page Ref:
Topic:
- 55) B
Diff: 0 Page Ref:
Topic:
- 56) D
Diff: 0 Page Ref:
Topic:
- 57) A
Diff: 0 Page Ref:
Topic:
- 58) C
Diff: 0 Page Ref:
Topic:
- 59) A
Diff: 0 Page Ref:
Topic:
- 60) B
Diff: 0 Page Ref:
Topic:
- 61) A
Diff: 0 Page Ref:
Topic:
- 62) B
Diff: 0 Page Ref:
Topic:
- 63) A
Diff: 0 Page Ref:
Topic:
- 64) A
Diff: 0 Page Ref:
Topic:

Answer Key

Testname: CH1 1

- 65) A
Diff: 0 Page Ref:
Topic:
- 66) A
Diff: 0 Page Ref:
Topic:
- 67) B
Diff: 0 Page Ref:
Topic:
- 68) A
Diff: 0 Page Ref:
Topic:
- 69) C
Diff: 0 Page Ref:
Topic:
- 70) C
Diff: 0 Page Ref:
Topic:
- 71) C
Diff: 0 Page Ref:
Topic:
- 72) D
Diff: 0 Page Ref:
Topic:
- 73) A
Diff: 0 Page Ref:
Topic:
- 74) C
Diff: 0 Page Ref:
Topic:
- 75) A
Diff: 0 Page Ref:
Topic:
- 76) B
Diff: 0 Page Ref:
Topic:
- 77) A
Diff: 0 Page Ref:
Topic:
- 78) B
Diff: 0 Page Ref:
Topic:
- 79) C
Diff: 0 Page Ref:
Topic:
- 80) A
Diff: 0 Page Ref:
Topic:

Answer Key

Testname: CH1 1

81) D

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Topic:

82) A

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Topic:

83) A

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Topic:

84) A

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Topic:

85) B

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Topic:

86) C

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Topic:

87) C

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Topic:

88) B

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Topic:

89) D

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Topic:

90) A

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Topic: