

Name _____

Determine whether the relation represents a function. If it is a function, state the domain and range.

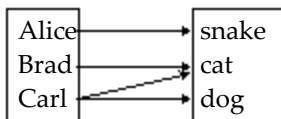
1)

1) _____

4	→	24
8	→	48
12	→	72
16	→	96

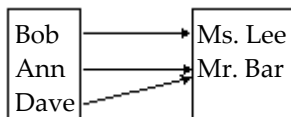
2)

2) _____



3)

3) _____



4) $\{(11, -3), (2, -2), (2, 0), (6, 2), (18, 4)\}$

4) _____

5) $\{(-2, 1), (-1, -2), (0, -3), (1, -2), (3, 6)\}$

5) _____

Determine whether the equation defines y as a function of x.

6) $y = x^4$

6) _____

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

7) _____

8) $y = |x|$

8) _____

9) $y^2 = 7 - x^2$

9) _____

10) $y = \pm \sqrt{1 - 4x}$

10) _____

11) $x = y^2$

11) _____

12) $y^2 + x = 3$

12) _____

13) $y = 7x^2 - 8x + 8$

13) _____

14) $y = \frac{5x - 4}{x + 2}$

14) _____

15) $x^2 + 3y^2 = 1$

15) _____

16) $x + 7y = 9$

16) _____

17) $9x + x^2 - 82 = y$

17) _____

Find the value for the function.

18) Find $f(-2)$ when $f(x) = x^2 - 4x - 1$.

18) _____

19) Find $f(2)$ when $f(x) = \frac{x^2 - 3}{x - 1}$.

19) _____

20) Find $f(-9)$ when $f(x) = |x| - 6$.

20) _____

21) Find $f(8)$ when $f(x) = \sqrt{x^2 + 6x}$.

21) _____

22) Find $f(-x)$ when $f(x) = -2x^2 + 5x - 2$.

22) _____

23) Find $f(-x)$ when $f(x) = \frac{x}{x^2 + 8}$.

23) _____

24) Find $-f(x)$ when $f(x) = 2x^2 - 4x + 3$.

24) _____

25) Find $-f(x)$ when $f(x) = |x| + 4$.

25) _____

26) Find $f(x + 1)$ when $f(x) = \frac{x^2 - 3}{x + 4}$.

26) _____

27) Find $f(x + 1)$ when $f(x) = \frac{x^2 - 2}{x + 3}$.

27) _____

28) Find $f(x + 1)$ when $f(x) = \frac{x^2 - 8}{x + 3}$.

28) _____

29) Find $f(x + h)$ when $f(x) = -2x^2 - 3x - 4$.

29) _____

30) Find $f(x + h)$ when $f(x) = 2x^2 + 4x - 5$.

30) _____

31) Find $f(x + h)$ when $f(x) = -3x^2 + 4x - 1$.

31) _____

32) Find $f(x + h)$ when $f(x) = -3x^2 + 3x - 4$.

32) _____

Find the domain of the function.

33) $f(x) = -2x + 6$

33) _____

34) $g(x) = \frac{x}{x^2 - 16}$

34) _____

35) $g(x) = \frac{2x}{x^2 - 64}$

35) _____

36) $h(x) = \frac{x - 4}{x^3 - 16x}$

36) _____

37) $h(x) = \frac{x - 2}{x^3 - 49x}$

37) _____

38) $f(x) = \sqrt{12 - x}$

38) _____

39) $f(x) = \sqrt{23 - x}$

39) _____

40) $\frac{x}{\sqrt{x - 3}}$

40) _____

Find the quadratic function $y = f(x)$ that has the given vertex and whose graph passes through the given point.

41) vertex: (3, 5) passing through: (4, 8) 41) _____

42) vertex: (-2, -3) passing through: (-5, 15) 42) _____

43) vertex: (-3, -3) passing through: (-2, -4) 43) _____

44) vertex (8, 2); passing through (6, 9) 44) _____

45) vertex (0, 6); passing through (-1, 0) 45) _____

46) vertex (-7, 0); passing through (-4, -3) 46) _____

47) vertex (-3, -6); passing through (5, -2) 47) _____

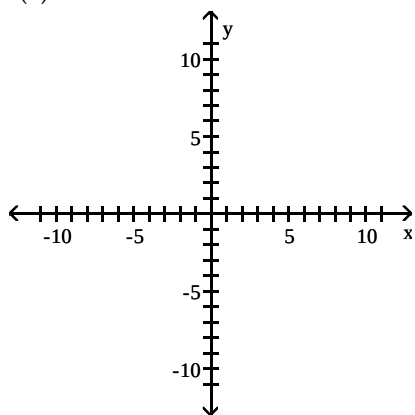
48) vertex $\left(\frac{7}{3}, \frac{7}{3}\right)$; passing through $\left(-\frac{5}{6}, \frac{5}{6}\right)$ 48) _____

49) vertex $\left(\frac{1}{3}, -\frac{5}{9}\right)$; passing through $\left(\frac{8}{9}, 5\right)$ 49) _____

Graph the function by starting with the graph of the basic function and then using the techniques of shifting, compressing, stretching, and/or reflecting.

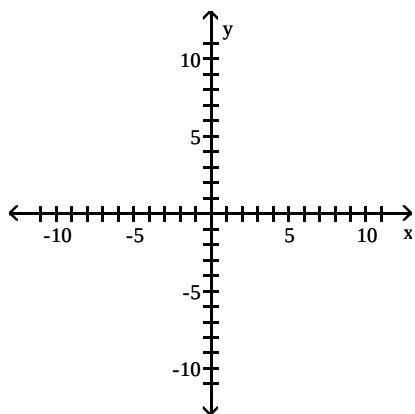
50) $f(x) = x^2 + 3$

50) _____



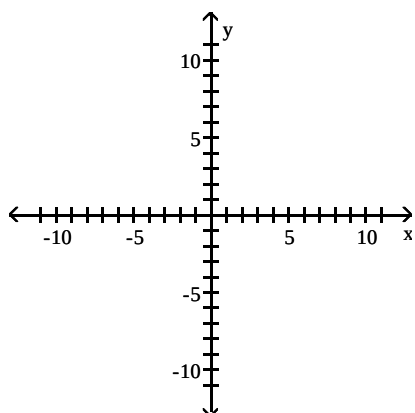
51) $f(x) = (x - 3)^2$

51) _____

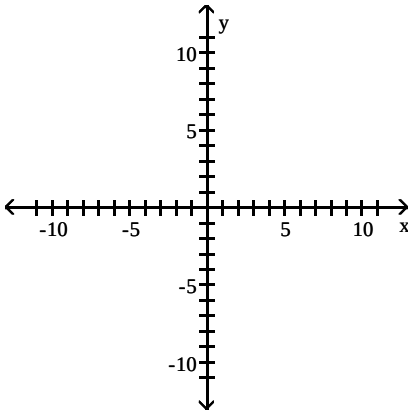


52) $f(x) = (x - 7)^2 - 7$

52) _____

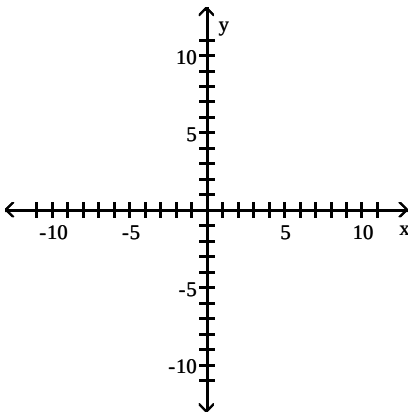


53) $f(x) = x^3 - 2$



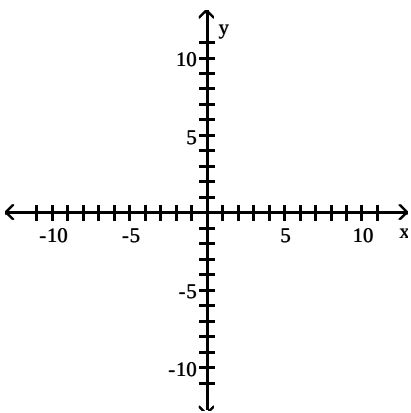
53) _____

54) $f(x) = (x - 1)^3$



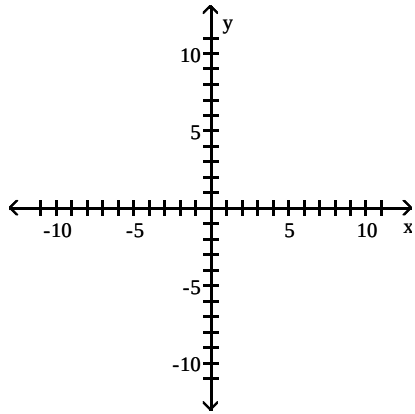
54) _____

55) $f(x) = (x + 6)^3 + 3$



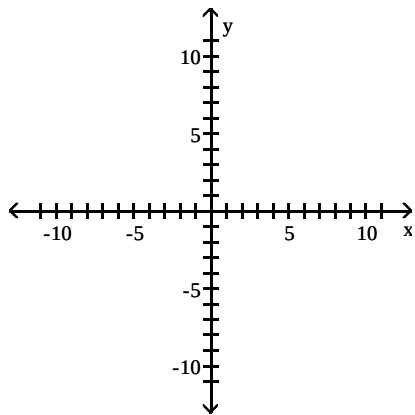
55) _____

56) $f(x) = \sqrt{x} - 3$



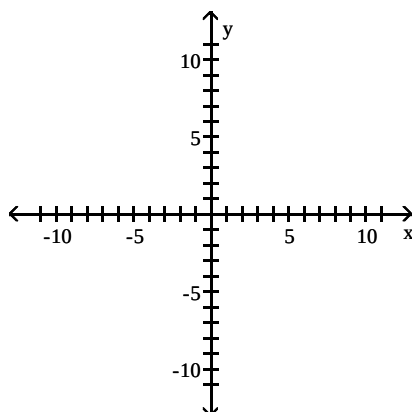
56) _____

57) $f(x) = \sqrt{x - 2}$



57) _____

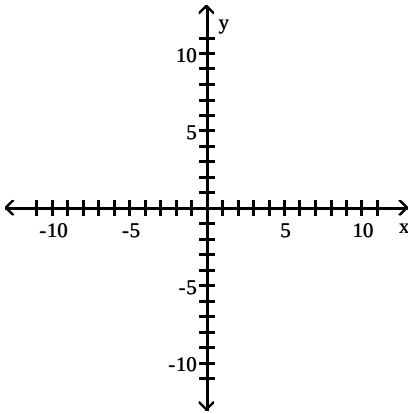
58) $f(x) = \sqrt{x - 2} - 7$



58) _____

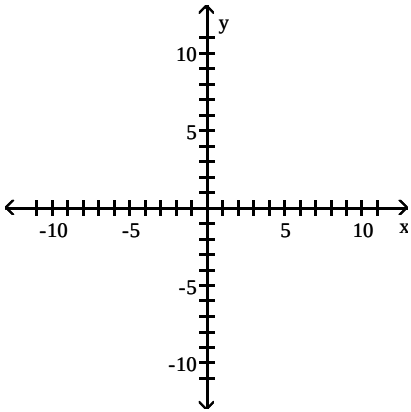
59) $f(x) = \sqrt{x - 5} + 6$

59) _____



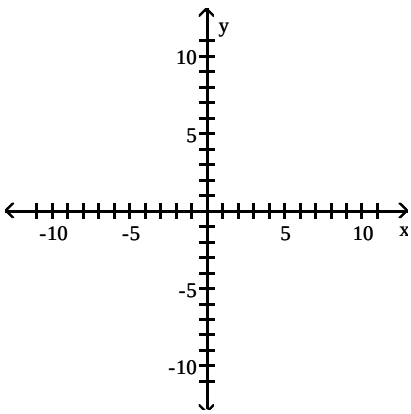
60) $f(x) = |x| + 4$

60) _____



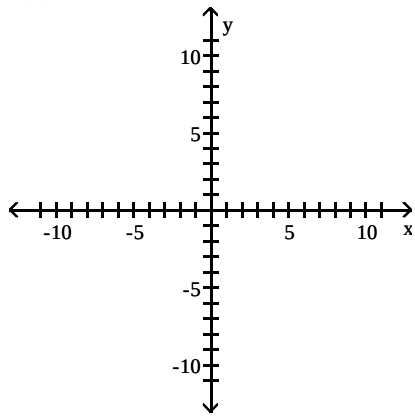
61) $f(x) = |x - 3|$

61) _____



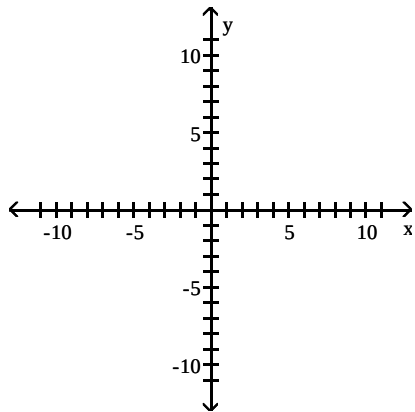
62) $f(x) = |x + 7| - 6$

62) _____



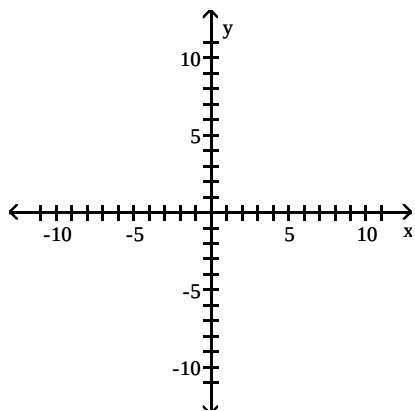
63) $f(x) = \frac{1}{x} - 4$

63) _____



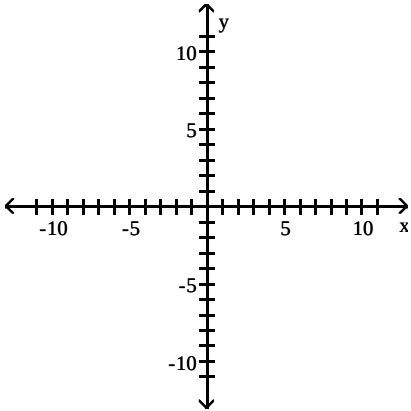
64) $f(x) = \frac{1}{x - 1}$

64) _____



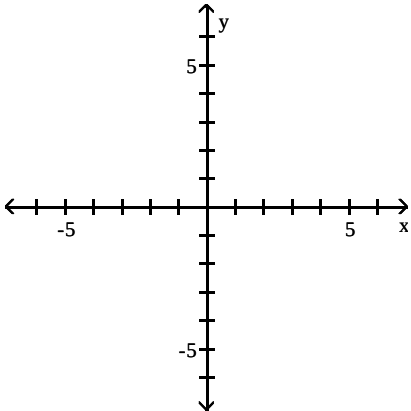
65) $f(x) = \frac{1}{x-5} - 3$

65) _____



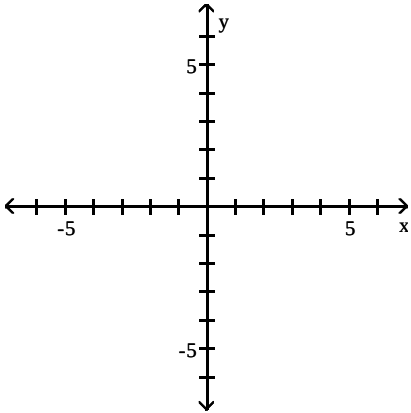
66) $f(x) = 4x^2$

66) _____



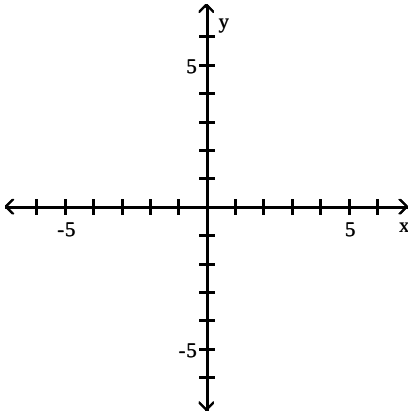
67) $f(x) = \frac{1}{6}x^2$

67) _____



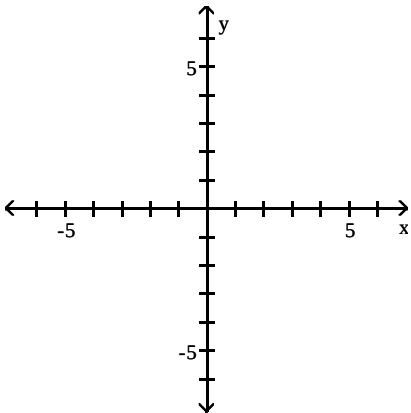
68) $f(x) = 6x^3$

68) _____



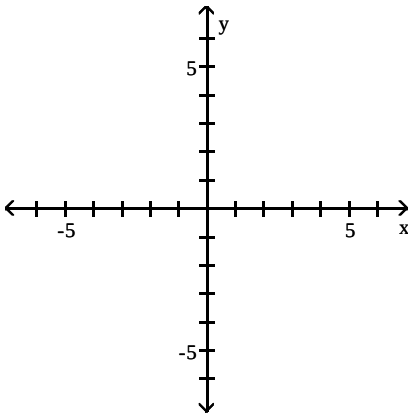
69) $f(x) = \frac{1}{6}x^3$

69) _____



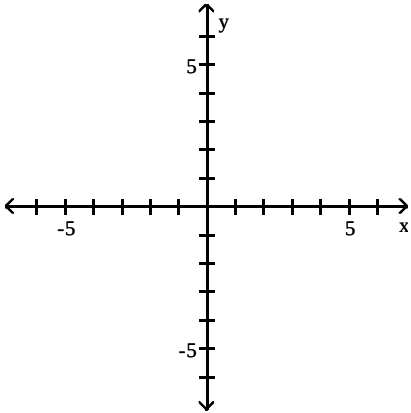
70) $f(x) = 2\sqrt{x}$

70) _____



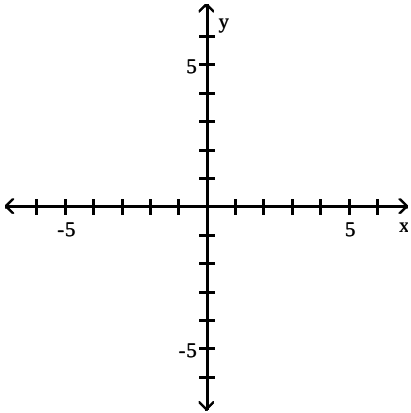
71) $f(x) = \frac{1}{3}\sqrt{x}$

71) _____



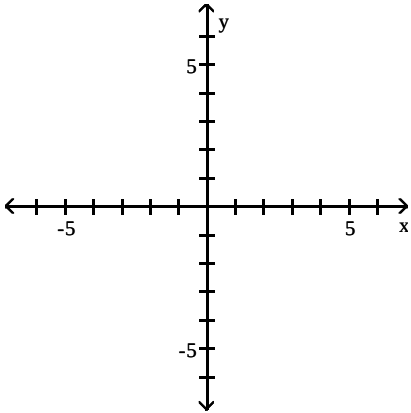
72) $f(x) = 7|x|$

72) _____



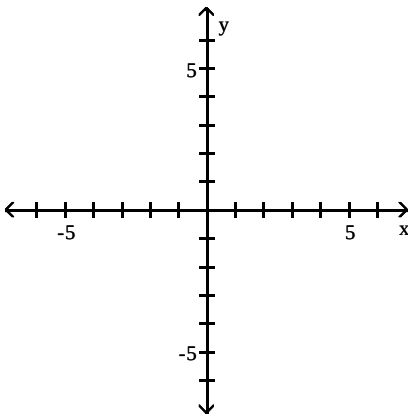
73) $f(x) = \frac{1}{2} |x|$

73) _____



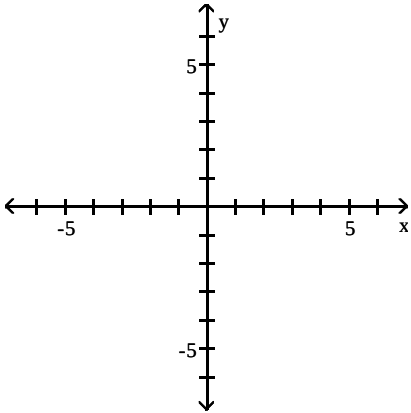
74) $f(x) = \frac{6}{x}$

74) _____



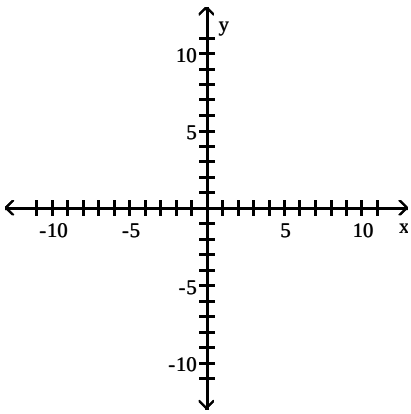
75) $f(x) = \frac{1}{7x}$

75) _____

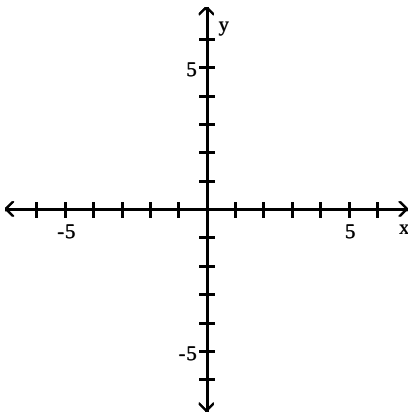


76) $f(x) = 2(x + 1)^2 - 4$

76) _____

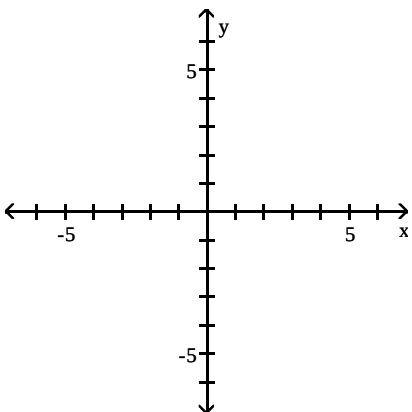


77) $f(x) = -x^2$



77) _____

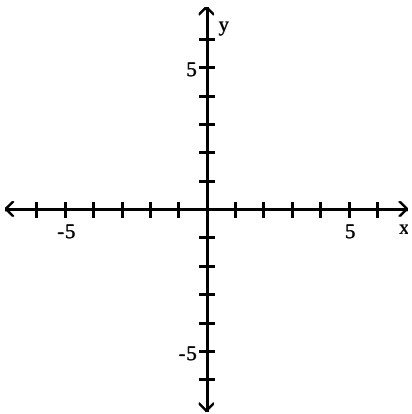
78) $f(x) = (-x)^2$



78) _____

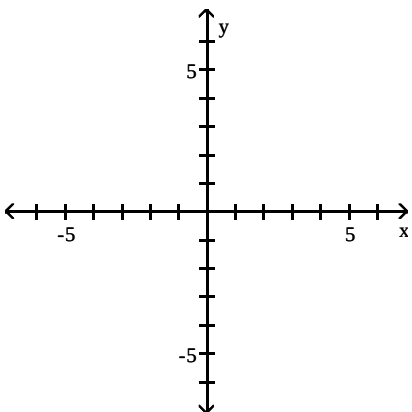
79) $f(x) = -x^3$

79) _____



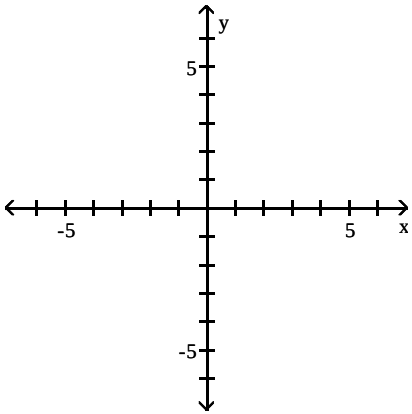
80) $f(x) = (-x)^3$

80) _____



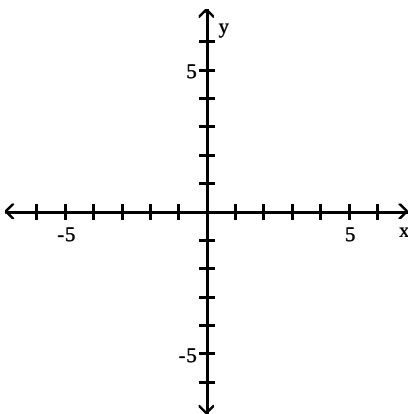
81) $f(x) = -\sqrt{x}$

81) _____

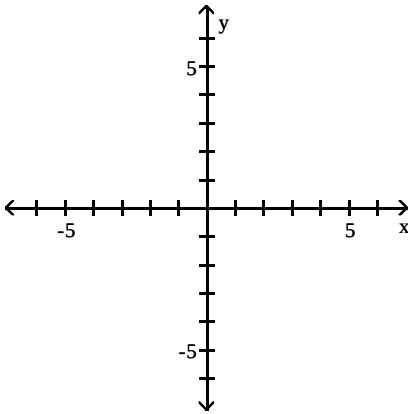


82) $f(x) = \sqrt{-x}$

82) _____

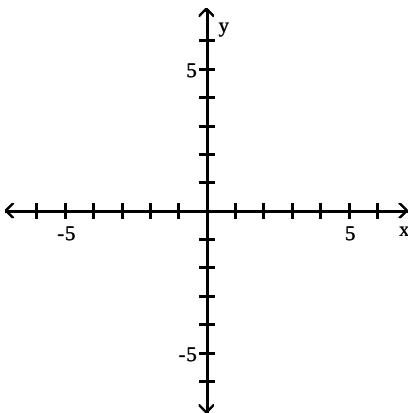


83) $f(x) = -|x|$



83) _____

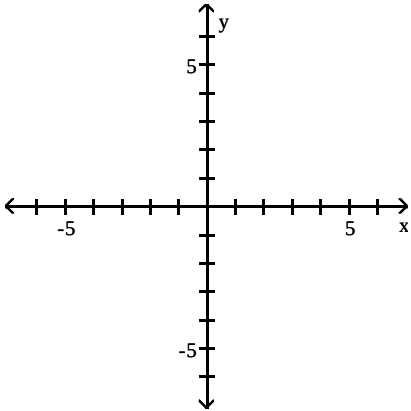
84) $f(x) = |-x|$



84) _____

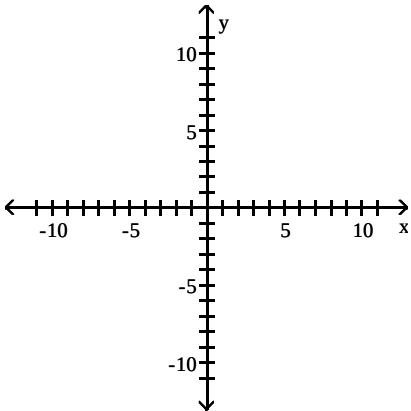
85) $f(x) = -\frac{1}{x}$

85) _____



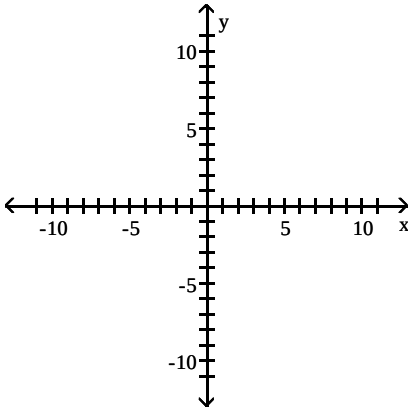
86) $f(x) = -(x + 5)^2 - 4$

86) _____



87) $f(x) = -2(x + 1)^2 + 2$

87) _____



Answer Key

Testname: Q4PREP3.1TO3.3V02

- 1) function
domain: {4, 8, 12, 16}
range: {24, 48, 72, 96}
- 2) not a function
- 3) function
domain: {Bob, Ann, Dave}
range: {Ms. Lee, Mr. Bar}
- 4) not a function
- 5) function
domain: {-2, -1, 0, 1, 3}
range: {1, -2, -3, 6}
- 6) function
- 7) function
- 8) function
- 9) not a function
- 10) not a function
- 11) not a function
- 12) not a function
- 13) function
- 14) function
- 15) not a function
- 16) function
- 17) function
- 18) 11
- 19) 1
- 20) 3
- 21) $4\sqrt{7}$
- 22) $-2x^2 - 5x - 2$
- 23) $\frac{-x}{x^2 + 8}$
- 24) $-2x^2 + 4x - 3$
- 25) $-|x| - 4$
- 26) $\frac{x^2 + 2x - 2}{x + 5}$
- 27) $\frac{x^2 + 2x - 1}{x + 4}$
- 28) $\frac{x^2 + 2x - 7}{x + 4}$
- 29) $-2x^2 - 4xh - 2h^2 - 3x - 3h - 4$
- 30) $2x^2 + 4xh + 2h^2 + 4x + 4h - 5$
- 31) $-3x^2 - 6xh - 3h^2 + 4x + 4h - 1$
- 32) $-3x^2 - 6xh - 3h^2 + 3x + 3h - 4$
- 33) all real numbers
- 34) $\{x \mid x \neq -4, 4\}$
- 35) $\{x \mid x \neq -8, 8\}$
- 36) $\{x \mid x \neq -4, 0, 4\}$
- 37) $\{x \mid x \neq -7, 0, 7\}$

Answer Key

Testname: Q4PREP3.1TO3.3V02

38) $\{x \mid x \leq 12\}$

39) $\{x \mid x \leq 23\}$

40) $\{x \mid x > 3\}$

41) $y = 3x^2 - 18x + 32$

42) $y = 2x^2 + 8x + 5$

43) $y = -x^2 - 6x - 12$

44) $y = \frac{7}{4}(x - 8)^2 + 2$

45) $y = -6x^2 + 6$

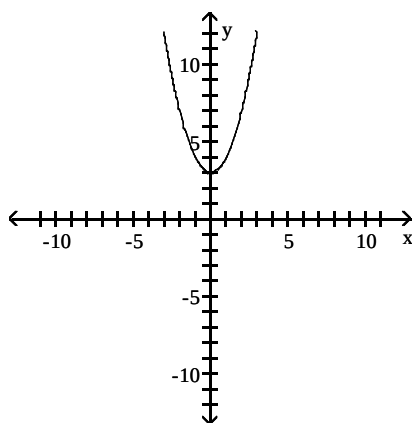
46) $y = -\frac{1}{3}(x + 7)^2$

47) $y = \frac{1}{16}(x + 3)^2 - 6$

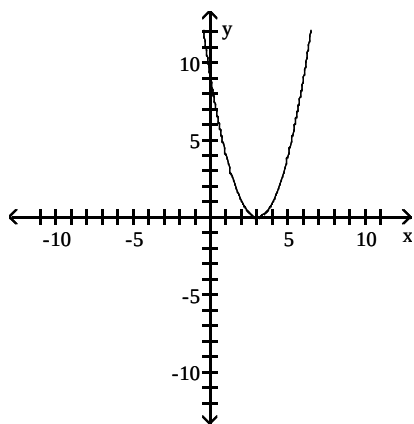
48) $y = -\frac{54}{361}\left(x - \frac{7}{3}\right)^2 + \frac{7}{3}$

49) $y = 18(x - a)^2 - \frac{5}{9}$

50)



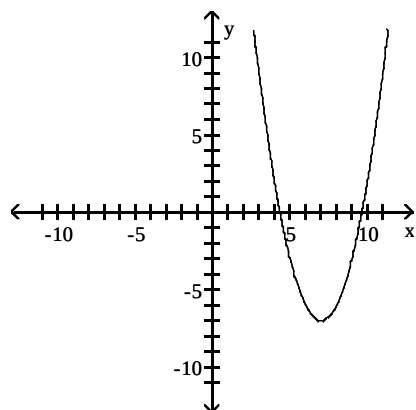
51)



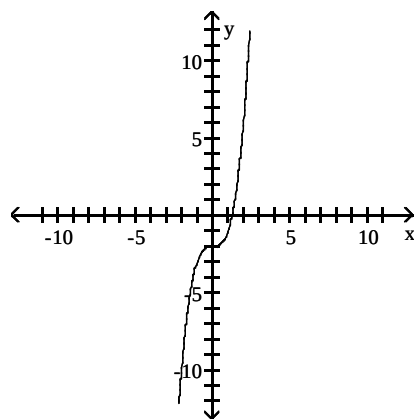
Answer Key

Testname: Q4PREP3.1TO3.3V02

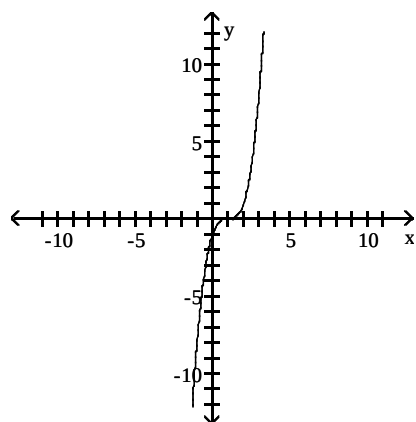
52)



53)



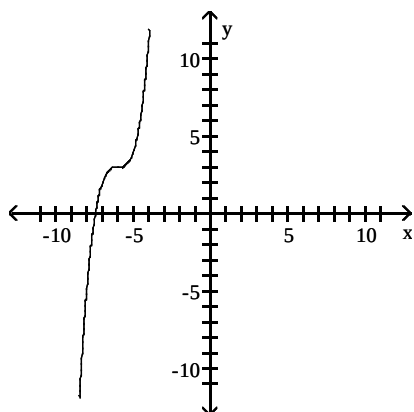
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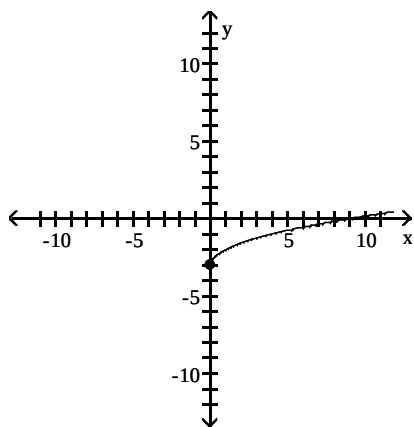
Answer Key

Testname: Q4PREP3.1TO3.3V02

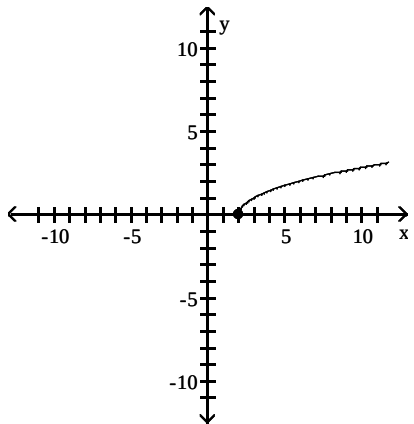
55)



56)



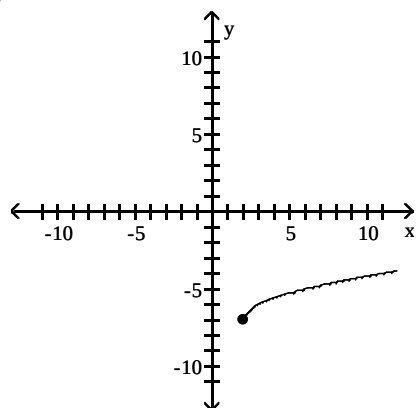
57)



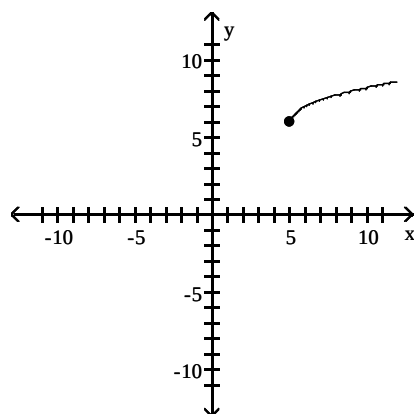
Answer Key

Testname: Q4PREP3.1TO3.3V02

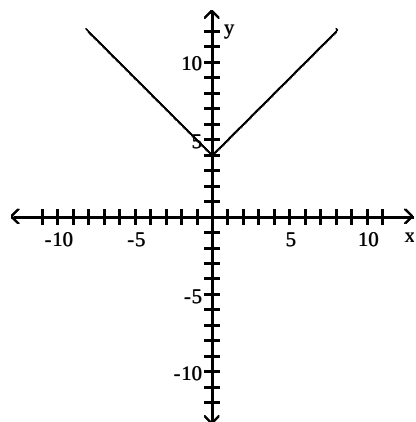
58)



59)



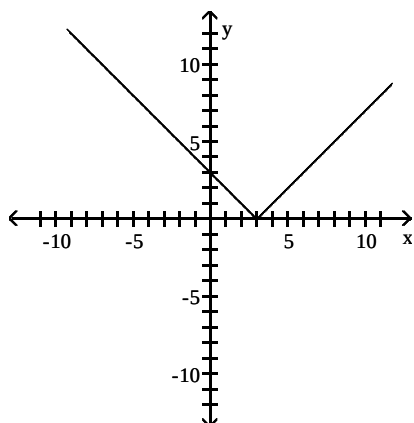
60)



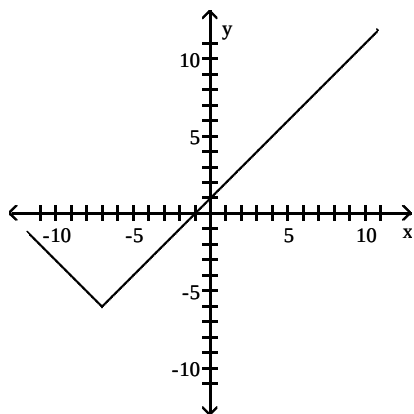
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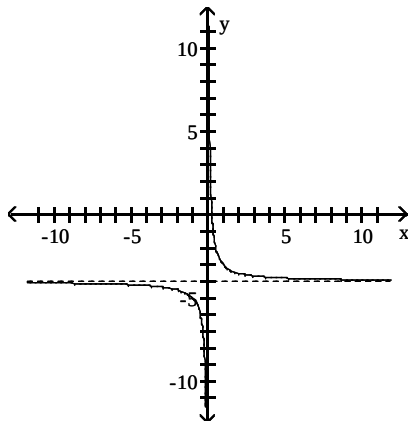
61)



62)



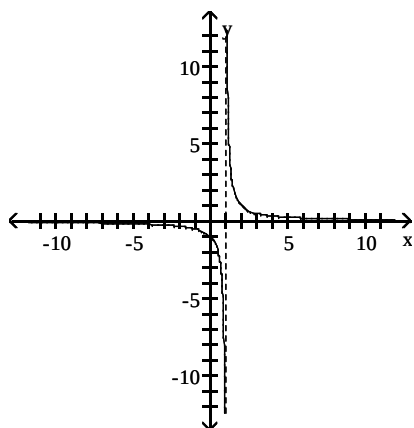
63)



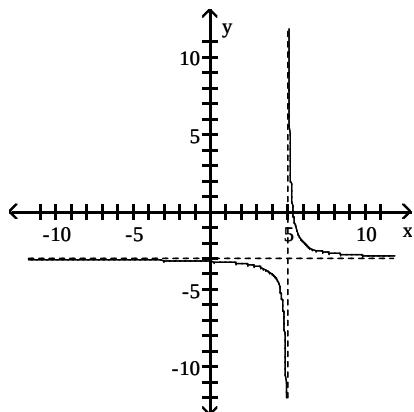
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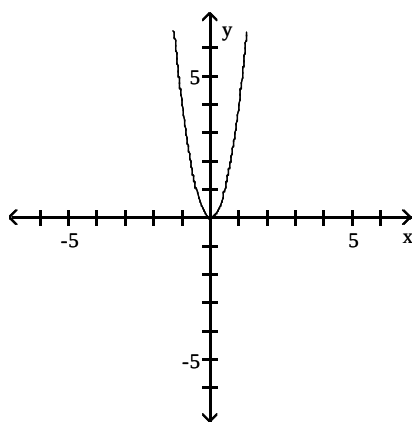
64)



65)



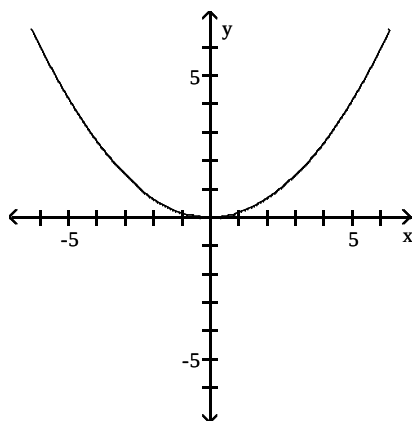
66)



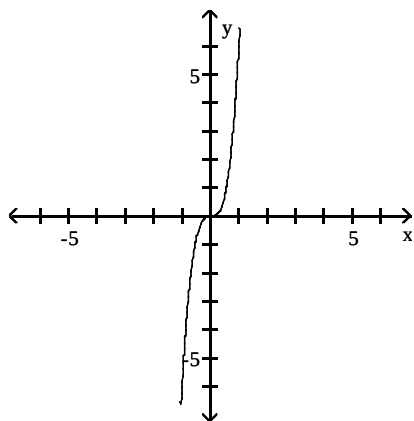
Answer Key

Testname: Q4PREP3.1TO3.3V02

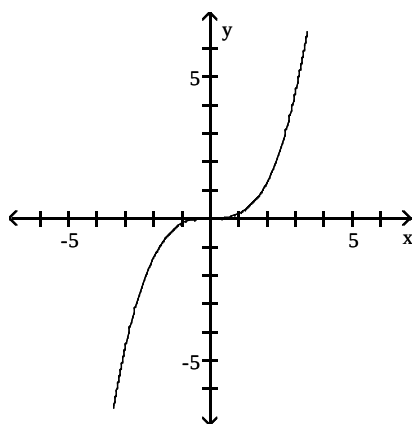
67)



68)



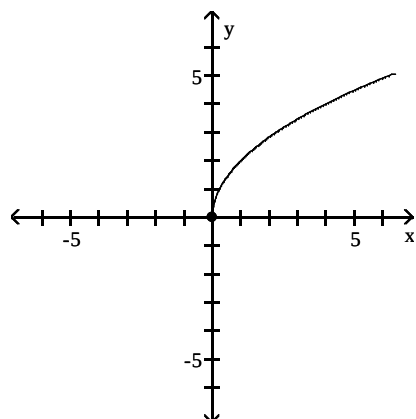
69)



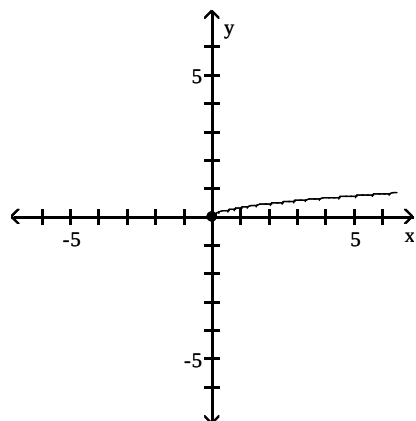
Answer Key

Testname: Q4PREP3.1TO3.3V02

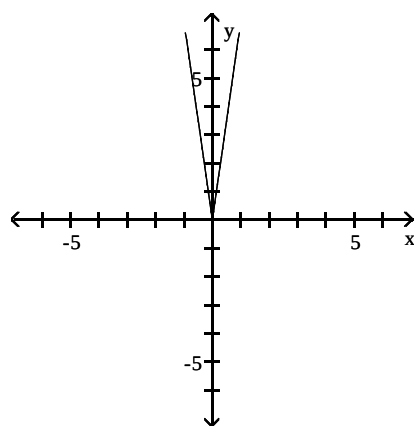
70)



71)



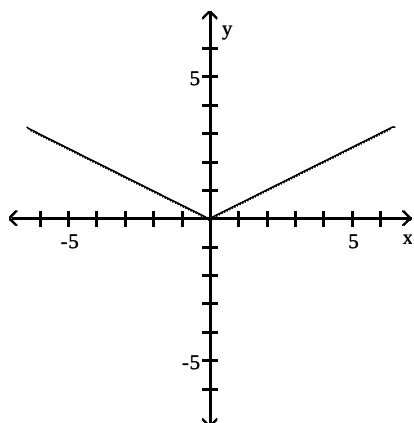
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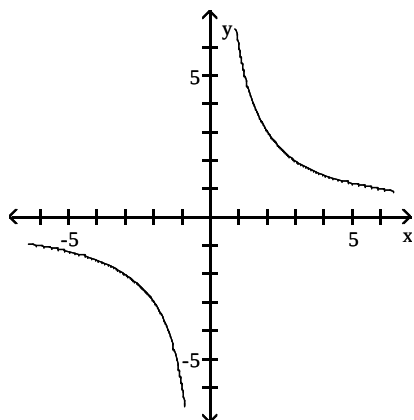
Answer Key

Testname: Q4PREP3.1TO3.3V02

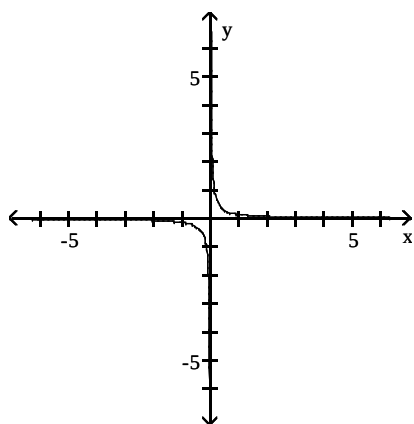
73)



74)



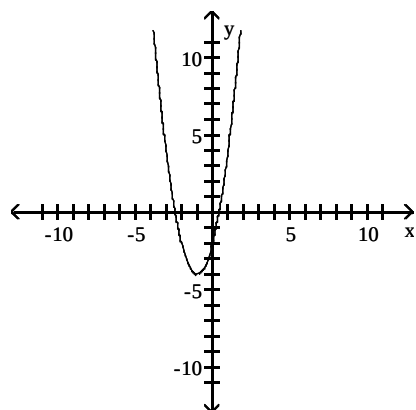
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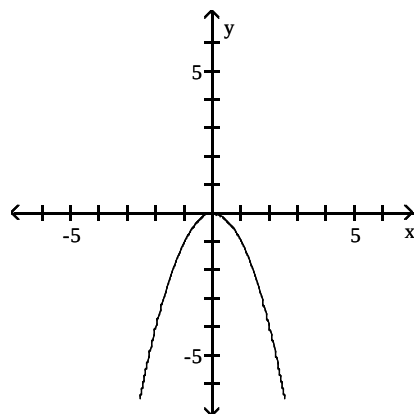
Answer Key

Testname: Q4PREP3.1TO3.3V02

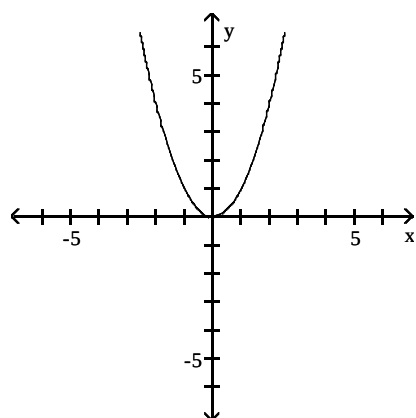
76)



77)



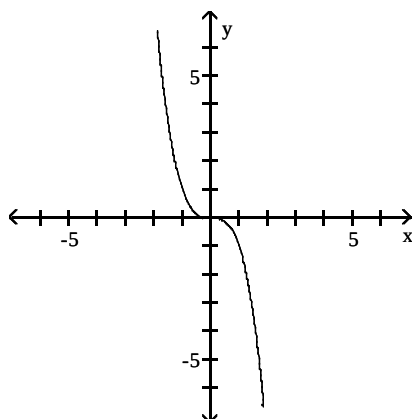
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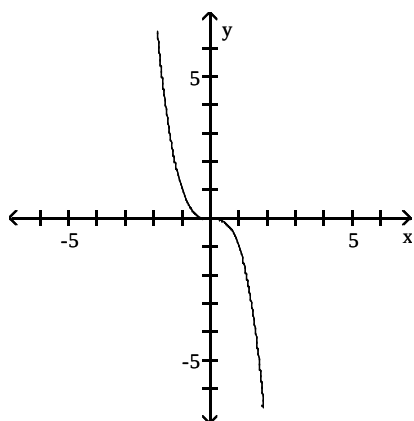
Answer Key

Testname: Q4PREP3.1TO3.3V02

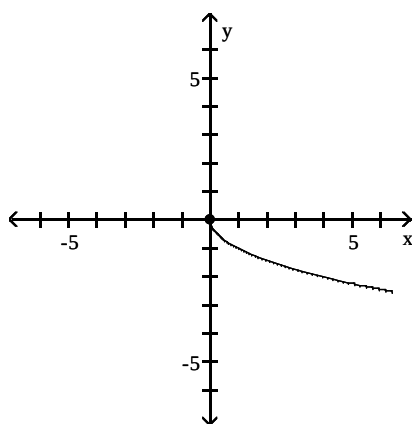
79)



80)



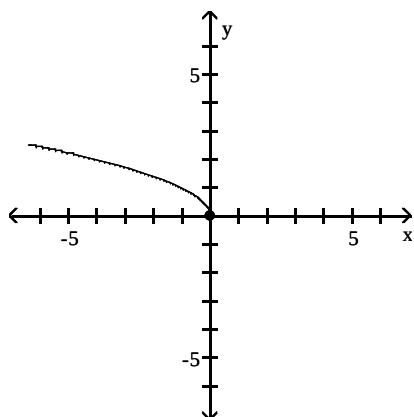
81)



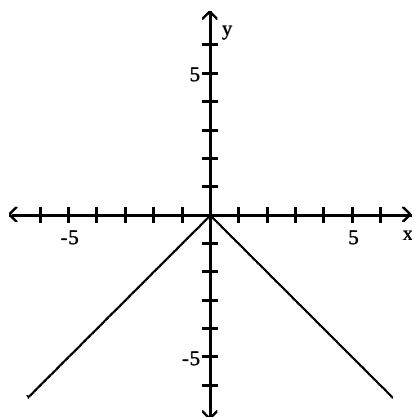
Answer Key

Testname: Q4PREP3.1TO3.3V02

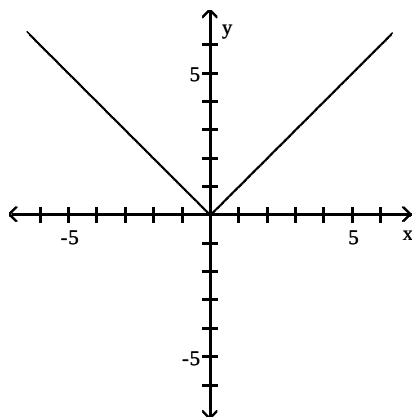
82)



83)



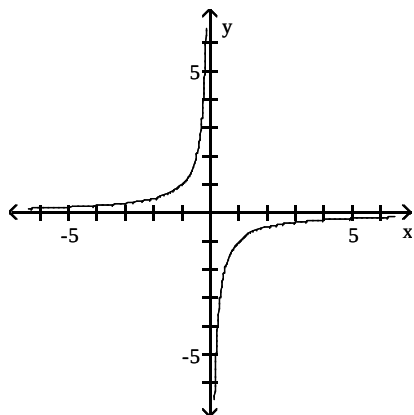
84)



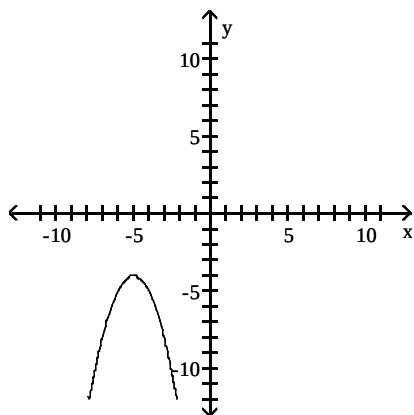
Answer Key

Testname: Q4PREP3.1TO3.3V02

85)



86)



87)

