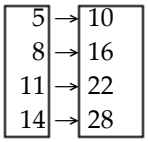
Math 102
Quiz 3 Preparation Ch.3.1 to 3.3 v01
NO BOOK/ NO NOTES/YES CALCUATOR
Dressler Fall 2016

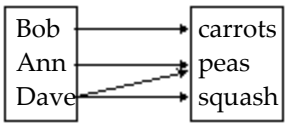
Name_____

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

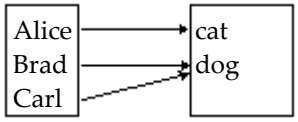
1) 1) _____



2) 2) _____



3) 3) _____



4) {(1, -4), (-3, -3), (-3, 0), (6, 3), (22, 5)} 4) _____

5) {(-4, 11), (-3, 4), (0, -5), (3, 4), (5, 20)} 5) _____

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

6) $y = x^2$ 6) _____

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

8) $y = |x|$ 8) _____

9) $y^2 = 4 - x^2$ 9) _____

10) $y = \pm\sqrt{1 - 2x}$ 10) _____

11) $x = y^2$ 11) _____

12) $y^2 + x = 2$ 12) _____

13) $y = 4x^2 - 6x + 6$ 13) _____

14) $y = \frac{3x - 5}{x + 2}$ 14) _____

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

16) $x - 4y = 8$ 16) _____

17) $-8x + x^2 - 63 = y$ 17) _____

Find the value for the function.

18) Find f(-4) when $f(x) = x^2 - 5x - 4$. 18) _____

19) Find f(2) when $f(x) = \frac{x^2 - 6}{x + 1}$. 19) _____

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

21) Find f(2) when $f(x) = \sqrt{x^2 + 7x}$. 21) _____

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

23) Find f(−x) when $f(x) = \frac{x}{x^2 + 5}$. 23) _____

24) Find $-f(x)$ when $f(x) = -2x^2 + 5x + 5$. 24) _____

25) Find $-f(x)$ when $f(x) = |x| - 3$. 25) _____

26) Find $f(x + 1)$ when $f(x) = \frac{x^2 - 6}{x + 2}$. 26) _____

27) Find $f(x + 1)$ when $f(x) = \frac{x^2 - 7}{x - 2}$. 27) _____

28) Find $f(x + 1)$ when $f(x) = \frac{x^2 - 3}{x - 4}$. 28) _____

29) Find $f(x + h)$ when $f(x) = 3x^2 - 2x + 5$. 29) _____

30) Find $f(x + h)$ when $f(x) = 3x^2 + 4x + 1$. 30) _____

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

32) Find $f(x + h)$ when $f(x) = 3x^2 - 3x - 5$. 32) _____

Find the domain of the function.

33) $f(x) = 9x + 7$ 33) _____

34) $g(x) = \frac{2x}{x^2 - 25}$ 34) _____

35) $g(x) = \frac{2x}{x^2 - 36}$ 35) _____

36) $h(x) = \frac{x - 1}{x^3 - 16x}$ 36) _____

37) $h(x) = \frac{x - 1}{x^3 - 4x}$ 37) _____

38) $f(x) = \sqrt{22 - x}$ 38) _____

39) $f(x) = \sqrt{2 - x}$ 39) _____

40) $\frac{x}{\sqrt{x - 4}}$ 40) _____

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

41) vertex: (2, 1) passing through: (0, 13) 41) _____

42) vertex: (–3, –5) passing through: (–7, 43) 42) _____

43) vertex: (–1, –4) passing through: (–3, –8) 43) _____

44) vertex (2, 2); passing through (8, 7) 44) _____

45) vertex (0, 8); passing through (–2, 0) 45) _____

46) vertex (–5, 0); passing through (–6, –5) 46) _____

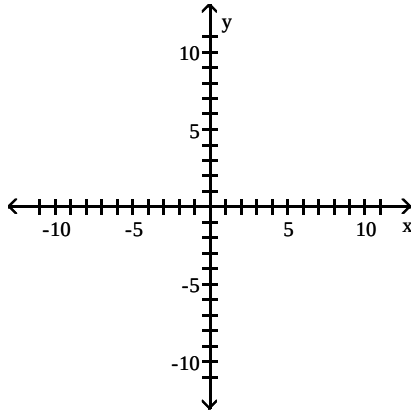
47) vertex (–4, –7); passing through (3, –1) 47) _____

48) vertex $\left(\frac{7}{4}, \frac{7}{4}\right)$; passing through $\left(-\frac{3}{20}, \frac{3}{20}\right)$ 48) _____

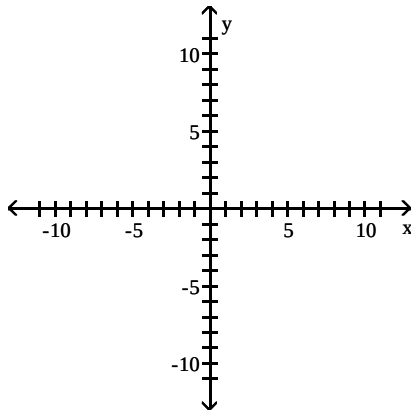
49) vertex $\left(\frac{4}{3}, -\frac{8}{9}\right)$; passing through $\left(\frac{11}{9}, -1\right)$ 49) _____

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

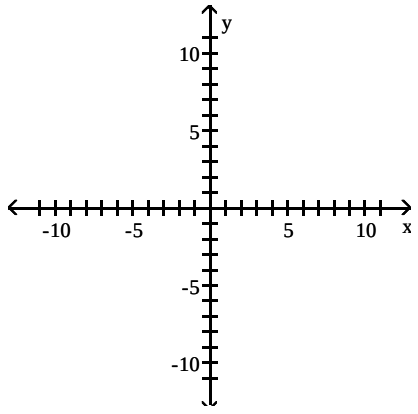
50) $f(x) = x^2 - 1$ 50) _____



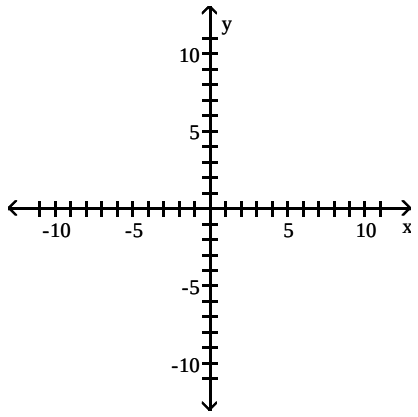
51) $f(x) = (x + 1)^2$ 51) _____



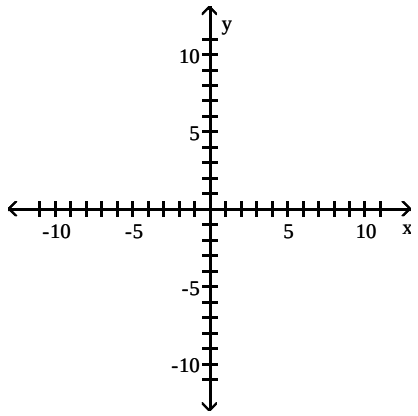
52) $f(x) = (x - 3)^2 + 4$ 52) _____



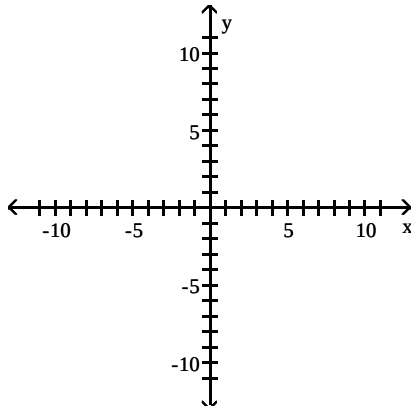
53) $f(x) = x^3 + 5$ 53) _____



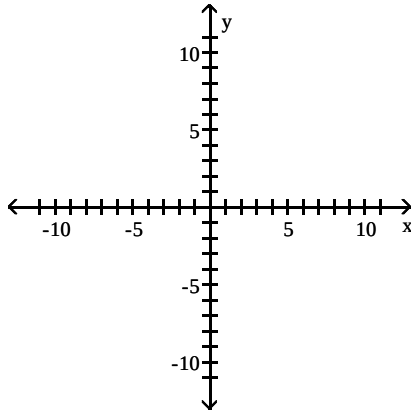
54) $f(x) = (x + 1)^3$ 54) _____



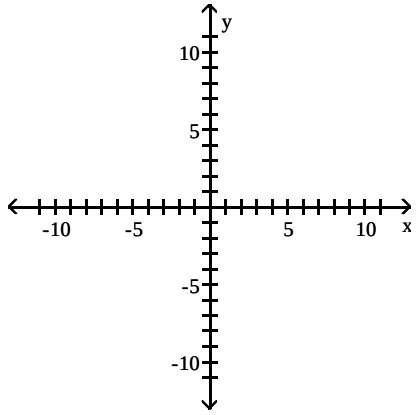
55) $f(x) = (x - 7)^3 - 3$ 55) _____



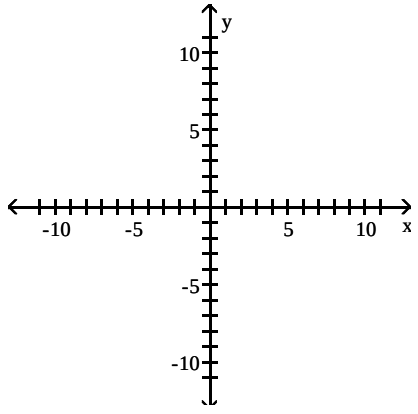
56) $f(x) = \sqrt{x} - 1$ 56) _____



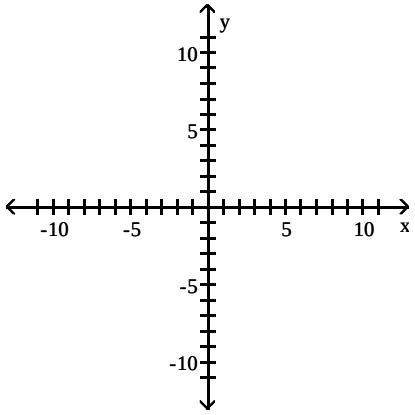
57) $f(x) = \sqrt{x - 3}$ 57) _____



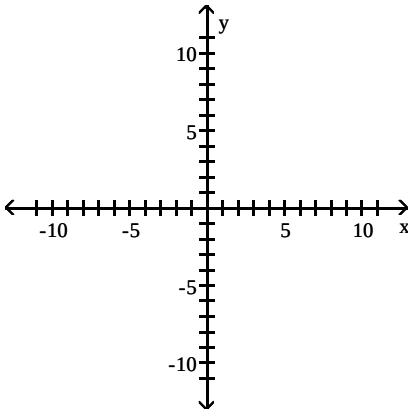
58) $f(x) = \sqrt{x - 2} - 1$ 58) _____



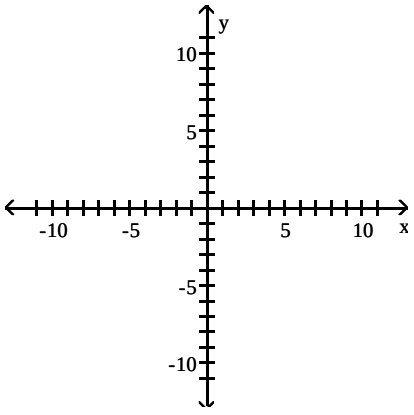
59) $f(x) = \sqrt{x + 5} + 5$ 59) _____



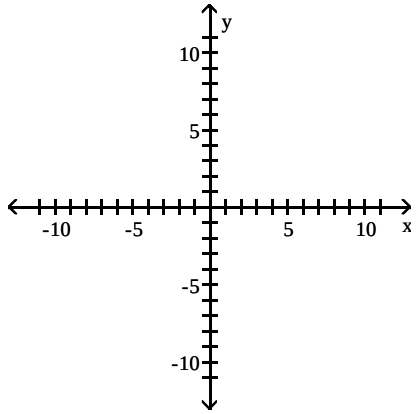
60) $f(x) = |x| + 3$ 60) _____



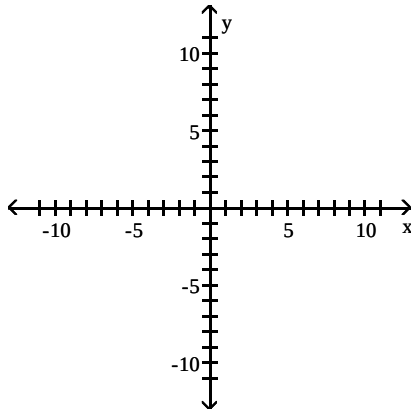
61) $f(x) = |x - 4|$ 61) _____



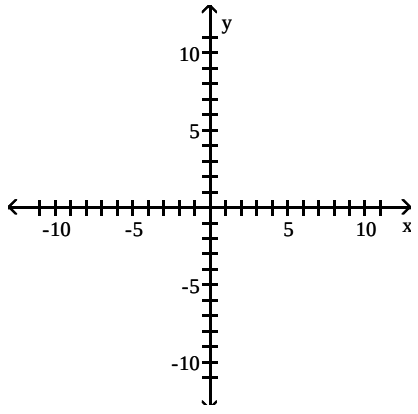
62) $f(x) = |x + 6| - 7$ 62) _____



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

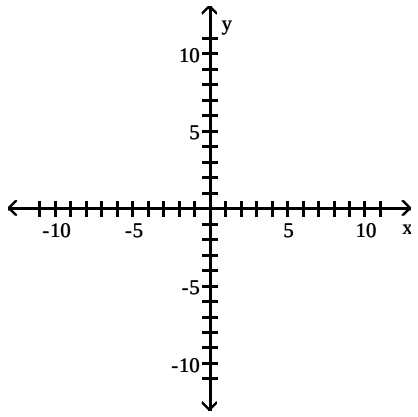


64) $f(x) = \frac{1}{x + 2}$ 64) _____



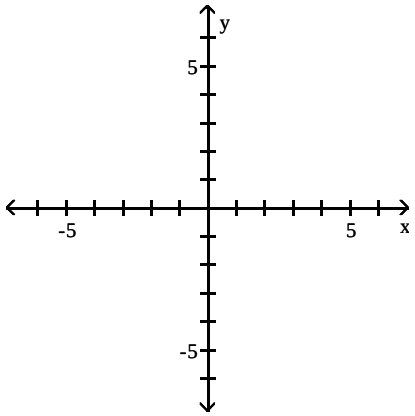
65) $f(x) = \frac{1}{x + 5} - 1$

65) _____

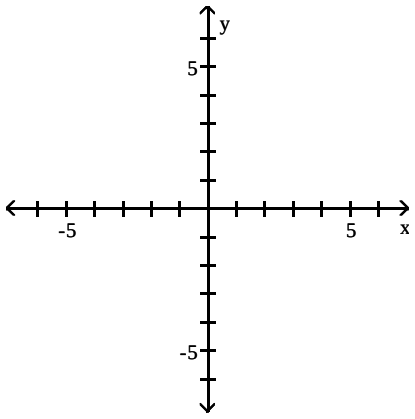


66) $f(x) = 6x^2$

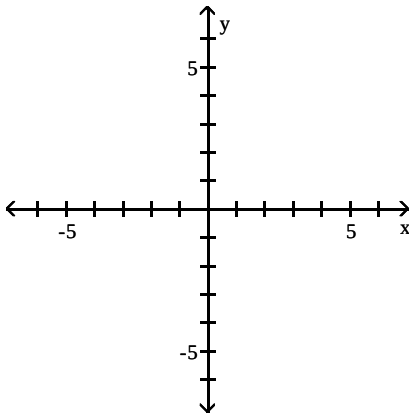
66) _____



67) $f(x) = \frac{1}{3}x^2$ 67) _____

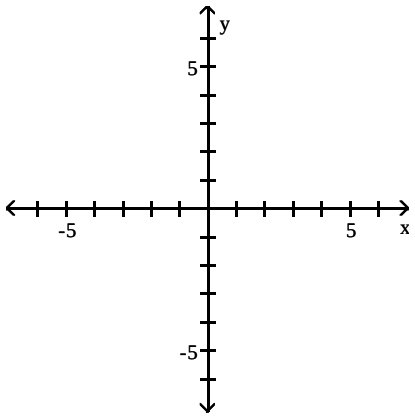


68) $f(x) = 7x^3$ 68) _____



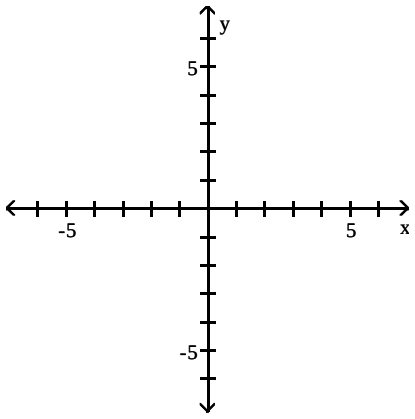
69) $f(x) = \frac{1}{4}x^3$

69) _____

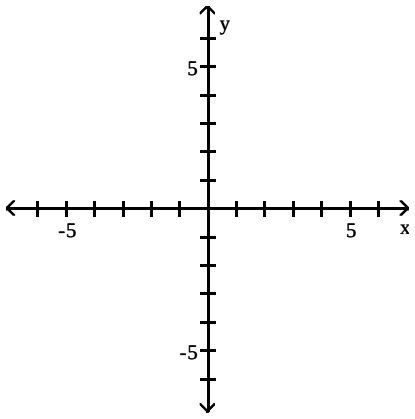


70) $f(x) = 7\sqrt{x}$

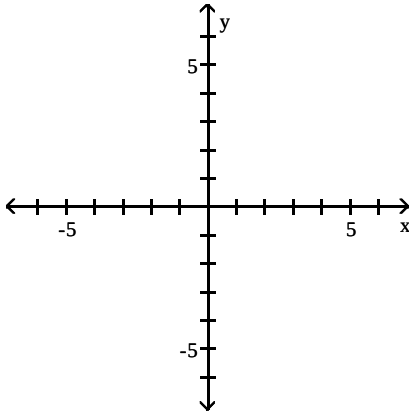
70) _____



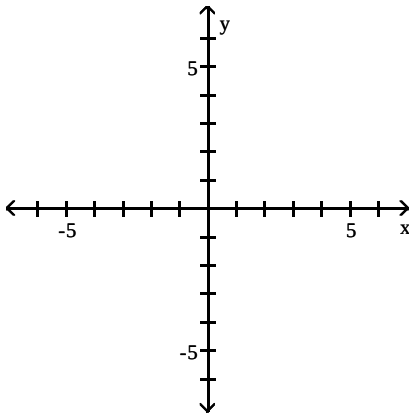
71) $f(x) = \frac{1}{5}\sqrt{x}$ 71) _____



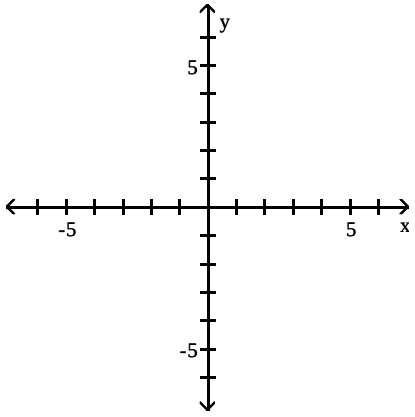
72) $f(x) = 5|x|$ 72) _____



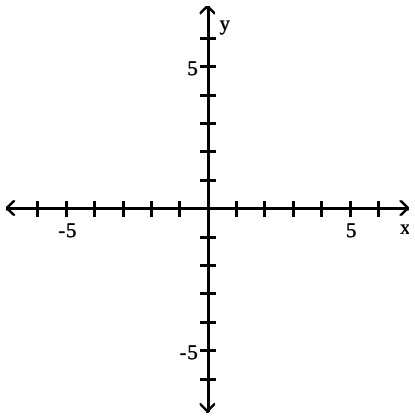
73) $f(x) = \frac{1}{3}|x|$ 73) _____



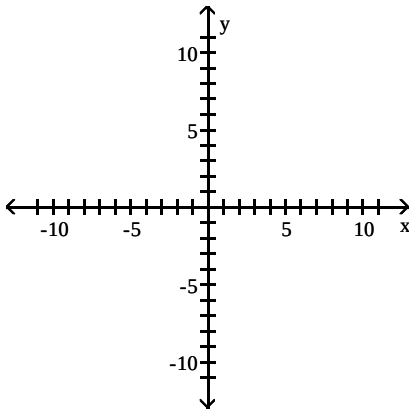
74) $f(x) = \frac{5}{x}$ 74) _____



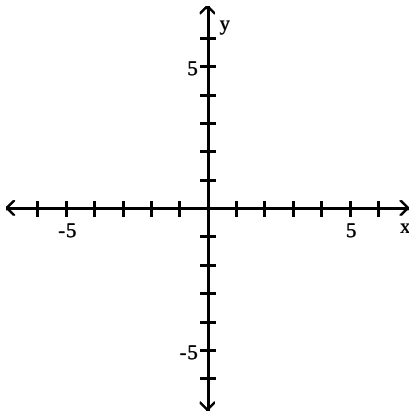
75) $f(x) = \frac{1}{3x}$ 75) _____



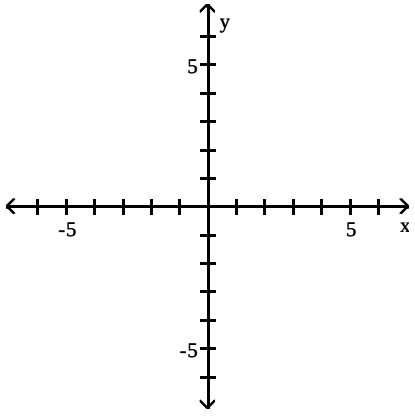
76) $f(x) = 3(x + 1)^2 + 2$ 76) _____



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

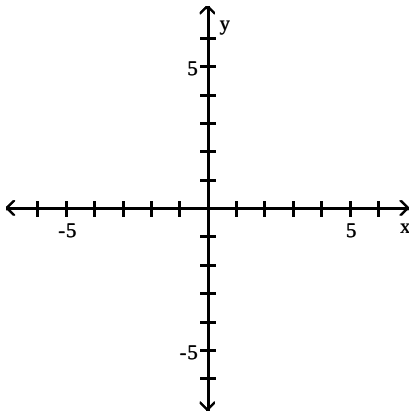


78) $f(x) = (-x)^2$ 78) _____



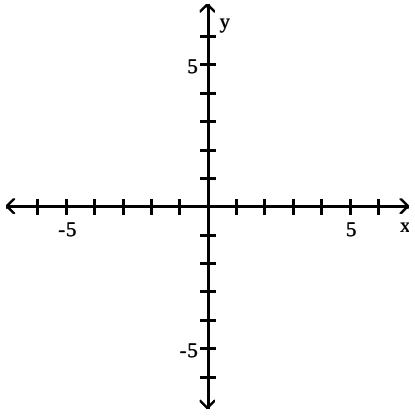
79) $f(x) = -x^3$

79) _____

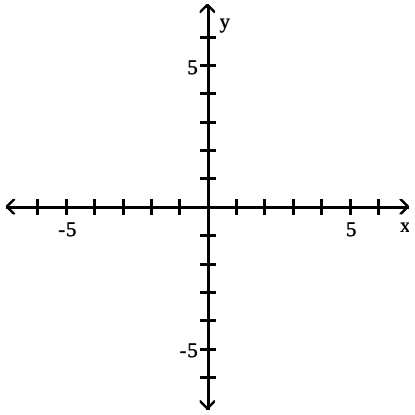


80) $f(x) = (-x)^3$

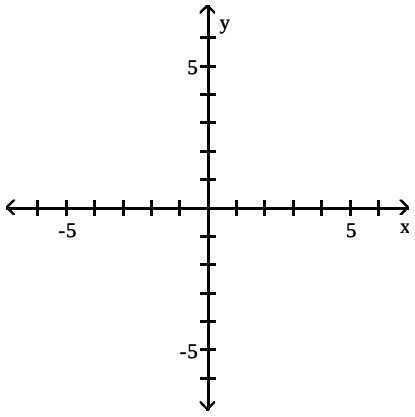
80) _____



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

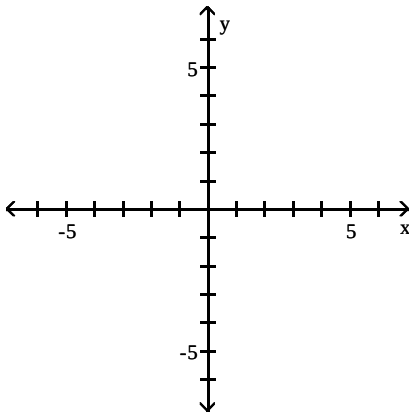


82) $f(x) = \sqrt{-x}$ 82) _____



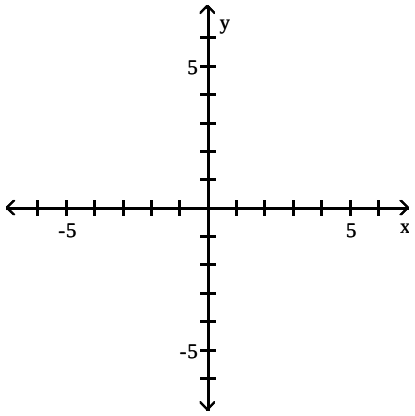
83) $f(x) = -|x|$

83) _____

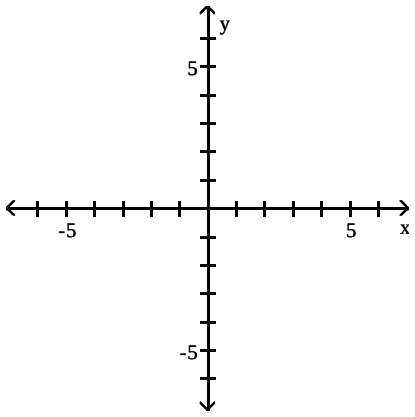


84) $f(x) = |-x|$

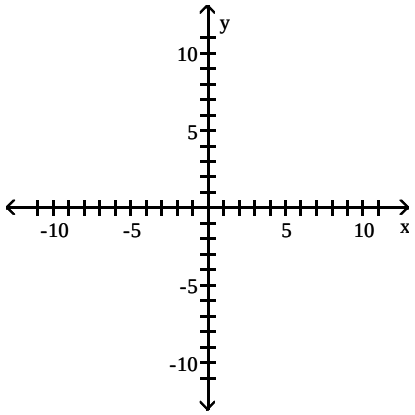
84) _____



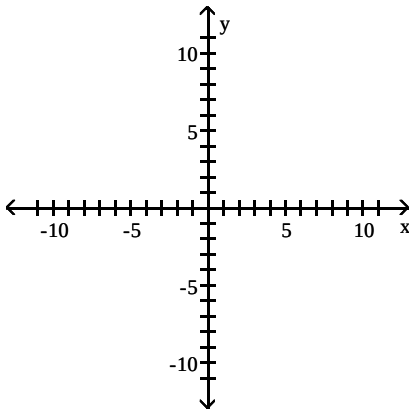
85) $f(x) = -\frac{1}{x}$ 85) _____



86) $f(x) = -(x - 6)^2 + 1$ 86) _____



87) $f(x) = -3(x + 1)^2 - 2$ 87) _____



1) function
   domain: {5, 8, 11, 14}
   range: {10, 16, 22, 28}
2) not a function
3) function
   domain: {Alice, Brad, Carl}
   range: {cat, dog}
4) not a function
5) function
   domain: {-4, -3, 0, 3, 5}
   range: {11, 4, -5, 20}
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) 32
19) $-\frac{2}{3}$
20) 3
21) $3\sqrt{2}$
22) $-2x^2 - 2x - 5$
23) $\frac{-x}{x^2 + 5}$
24) $2x^2 - 5x - 5$
25) $-|x| + 3$
26) $\frac{x^2 + 2x - 5}{x + 3}$
27) $\frac{x^2 + 2x - 6}{x - 1}$
28) $\frac{x^2 + 2x - 2}{x - 3}$
29) $3x^2 + 6xh + 3h^2 - 2x - 2h + 5$
30) $3x^2 + 6xh + 3h^2 + 4x + 4h + 1$
31) $-3x^2 - 6xh - 3h^2 + 3x + 3h + 1$
32) $3x^2 + 6xh + 3h^2 - 3x - 3h - 5$
33) all real numbers
34) $\{x | x \neq -5, 5\}$
35) $\{x | x \neq -6, 6\}$
36) $\{x | x \neq -4, 0, 4\}$

37) $\{x \mid x \neq -2, 0, 2\}$

38) $\{x \mid x \leq 22\}$

39) $\{x \mid x \leq 2\}$

40) $\{x \mid x > 4\}$

41) $y = 3x^2 - 12x + 13$

42) $y = 3x^2 + 18x + 22$

43) $y = -x^2 - 2x - 5$

44) $y = \frac{5}{36}(x - 2)^2 + 2$

45) $y = -2x^2 + 8$

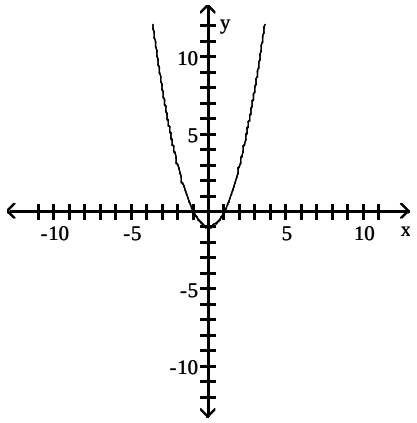
46) $y = -5(x + 5)^2$

47) $y = \frac{6}{49}(x + 4)^2 - 7$

48) $y = -\frac{160}{361}\left(x - \frac{7}{4}\right)^2 + \frac{7}{4}$

49) $y = -9(x - a)^2 - \frac{8}{9}$

50)



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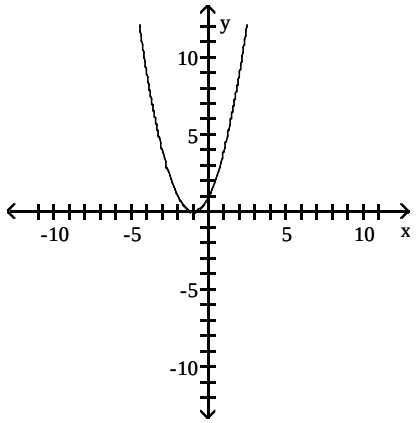

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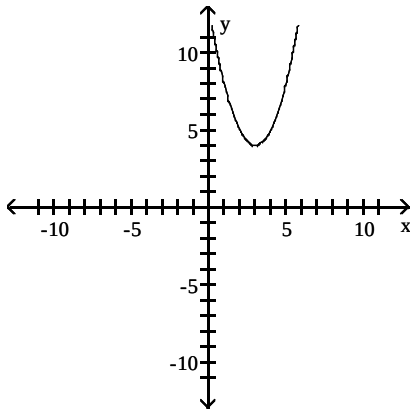

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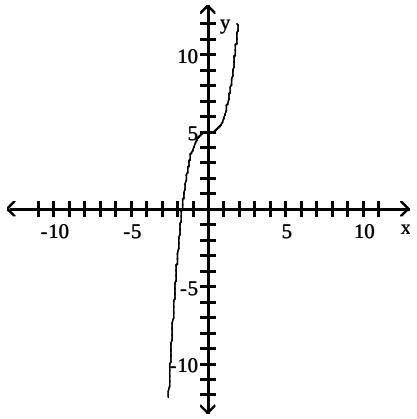

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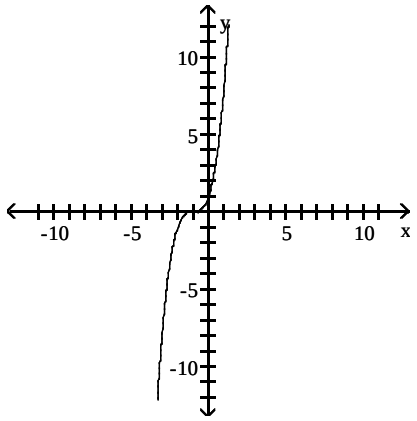

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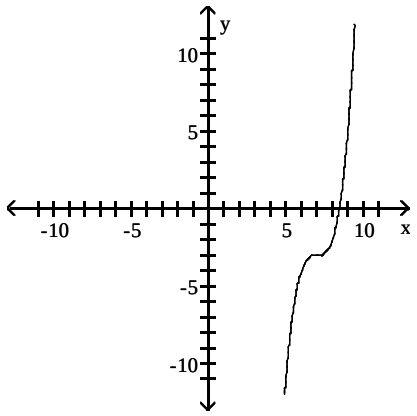

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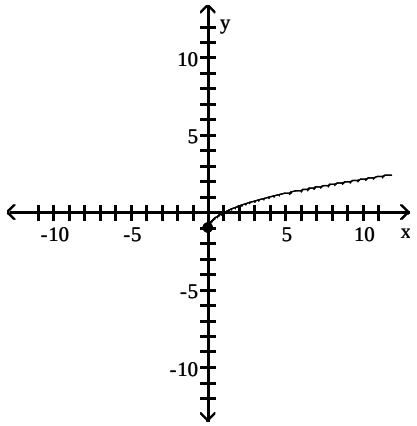

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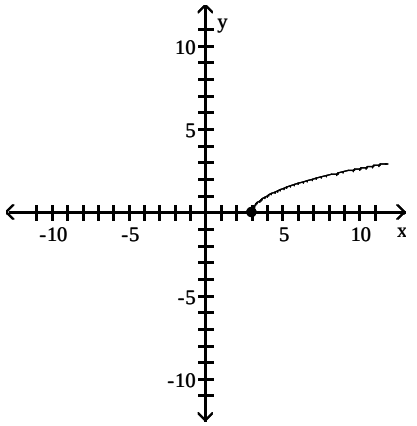

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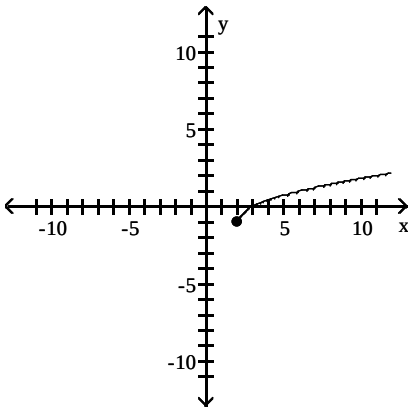

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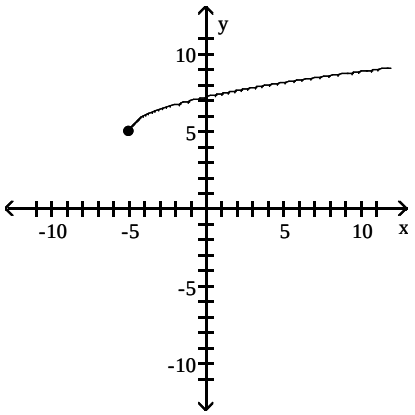

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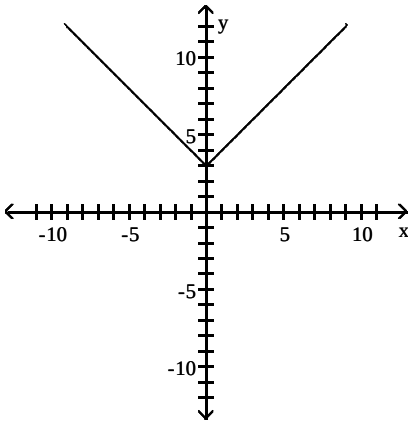

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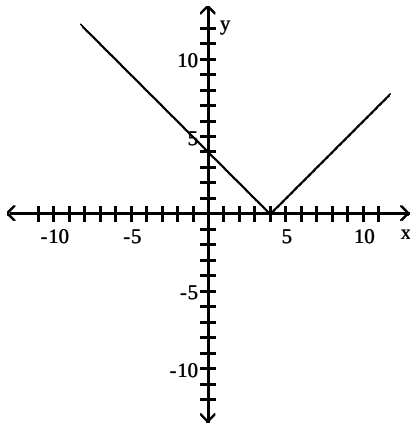

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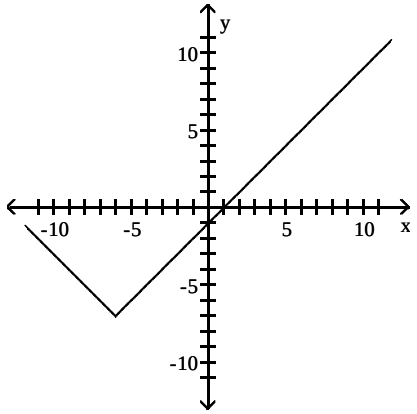

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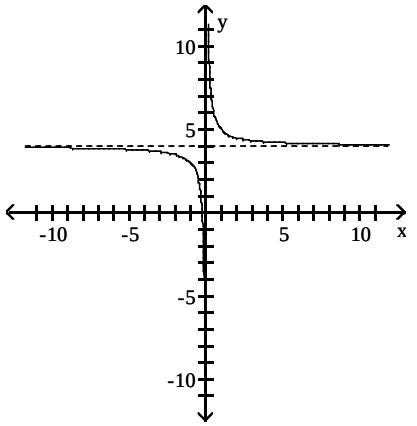

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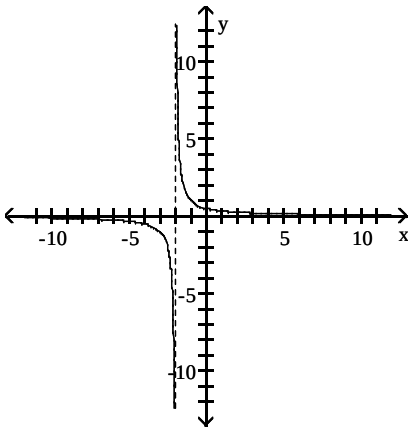

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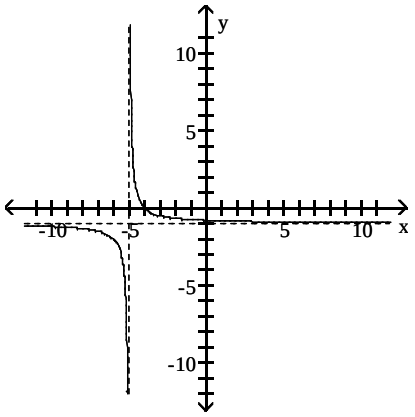

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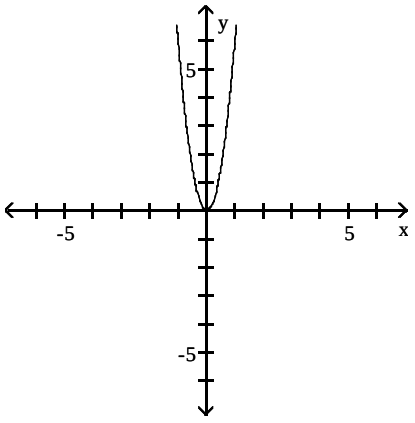

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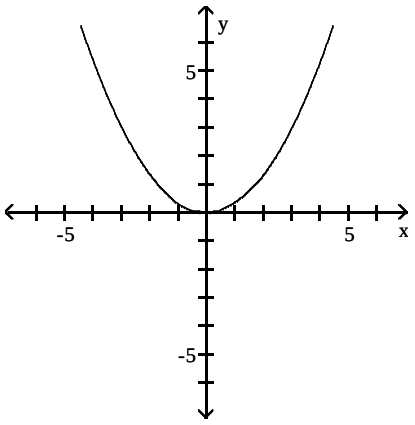

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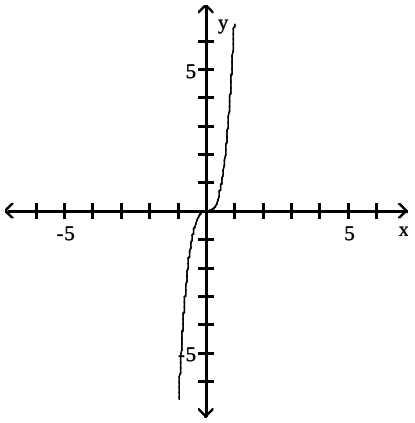

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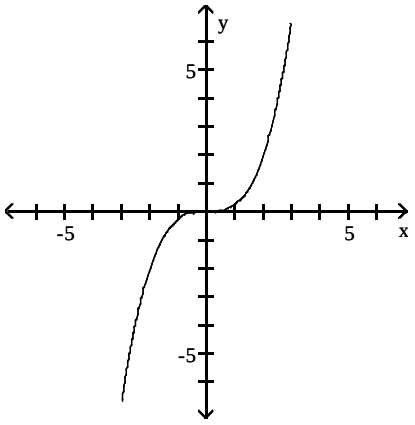

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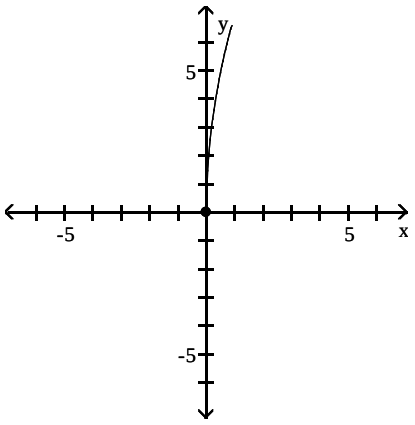

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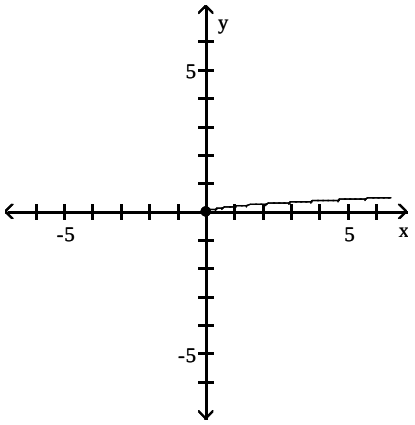

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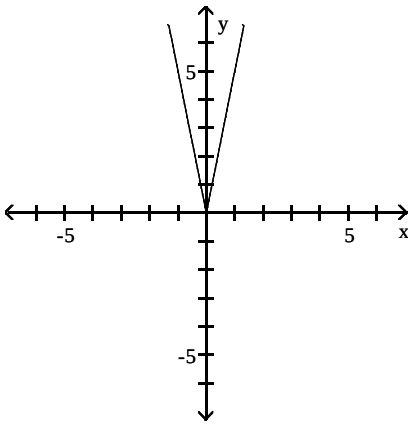

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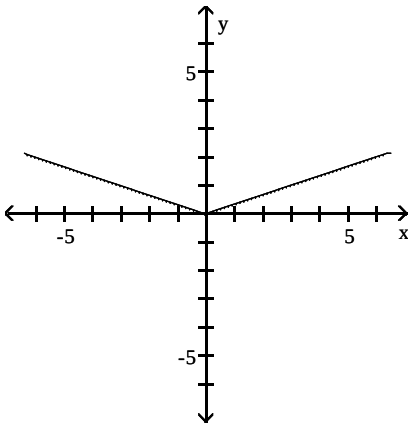

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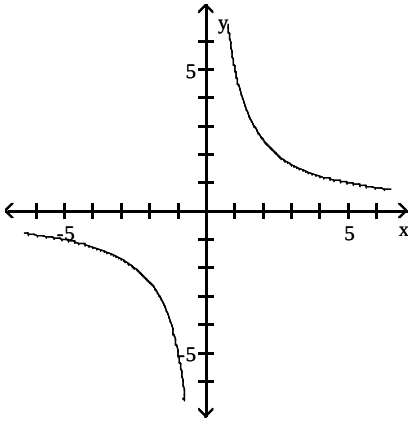

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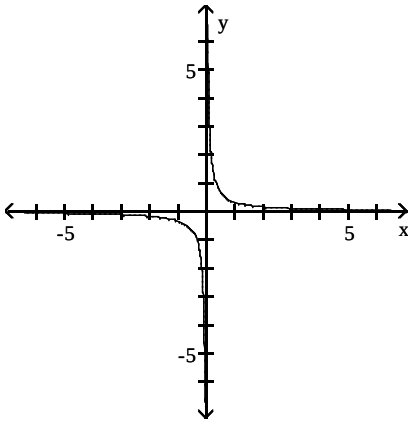

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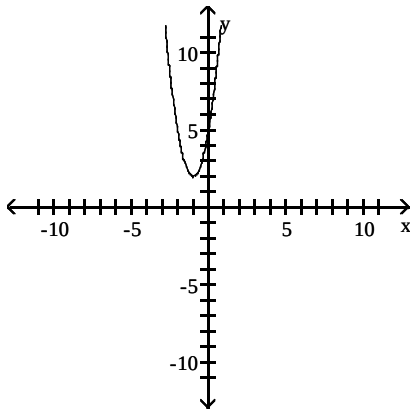

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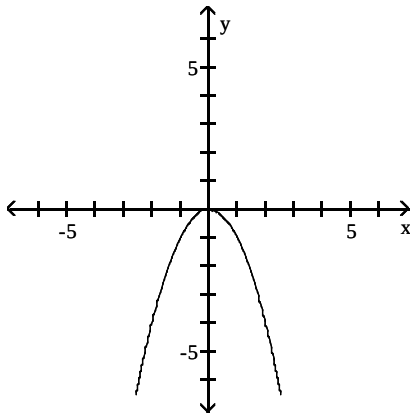

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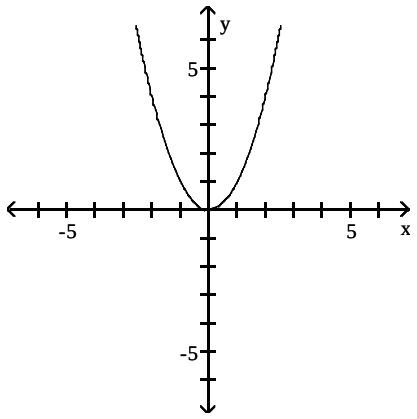

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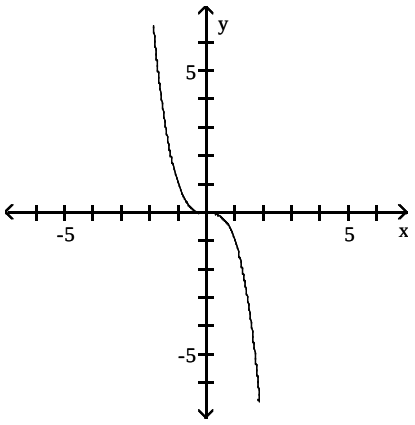

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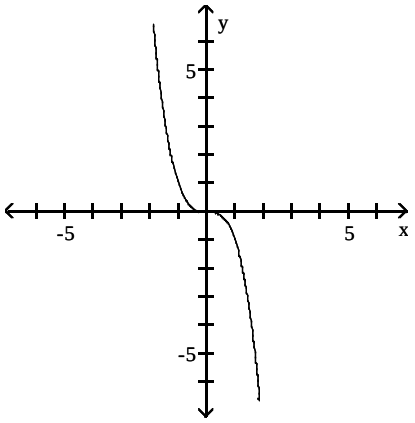

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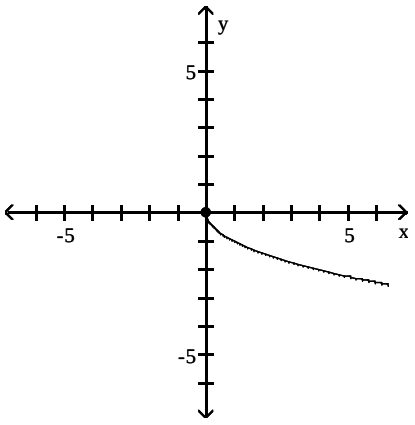

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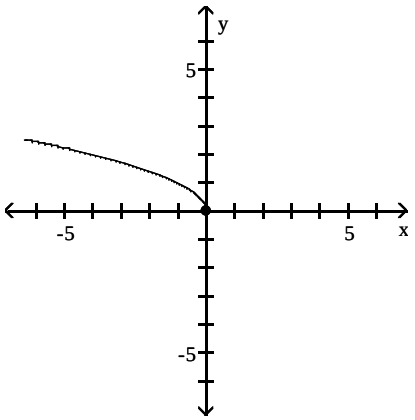

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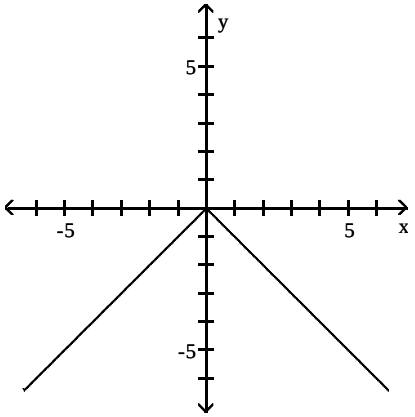

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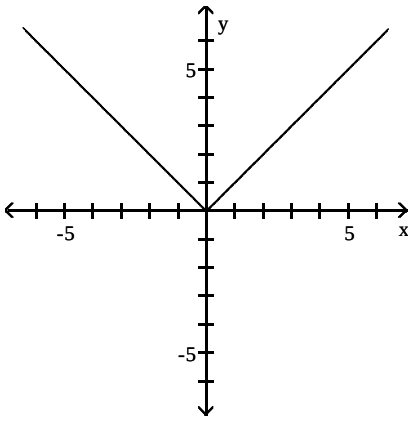

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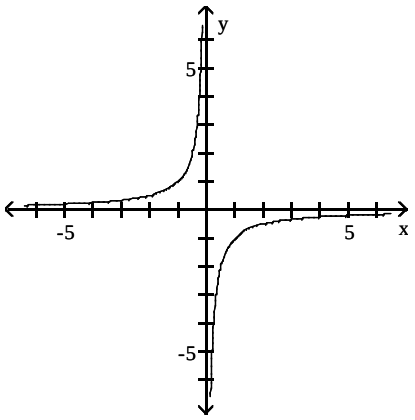

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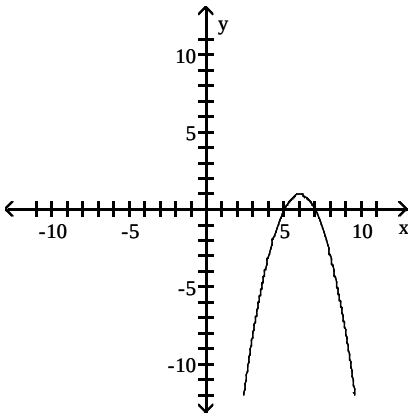

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