

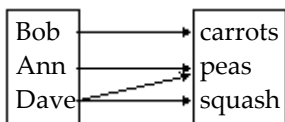
Name _____

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

1) $\{(-2, -8), (1, 4), (4, -4), (8, -2)\}$

1) _____

2)

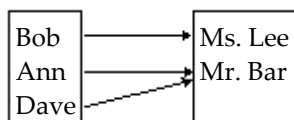


2) _____

3) $\{(-2, 6), (-1, 3), (0, 2), (1, 3), (3, 11)\}$

3) _____

4)



4) _____

Determine whether the equation is a function.

5) $y = 3x^2 - 6x + 7$

5) _____

6) $x - 7y = 2$

6) _____

7) $x^2 - 5y^2 = 1$

7) _____

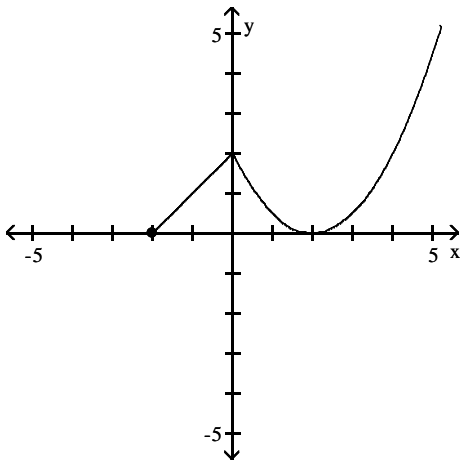
8) $y = x^3$

8) _____

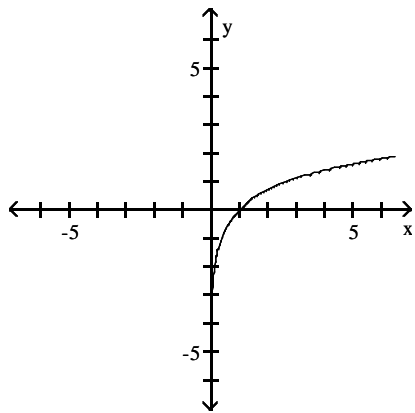
Determine whether the graph is that of a function.

9)

9) _____

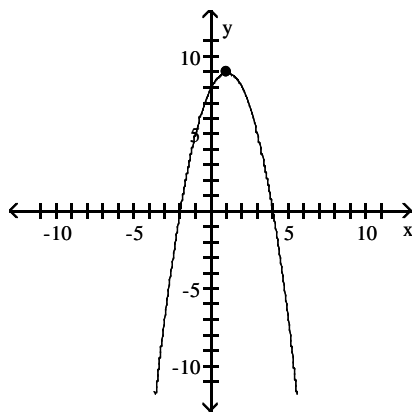


10)



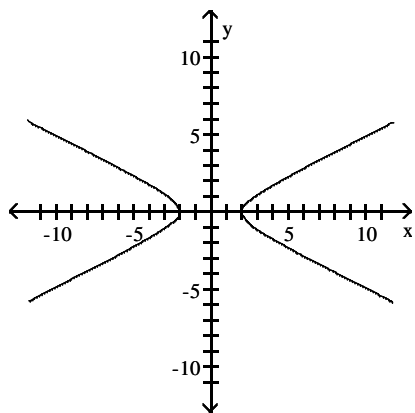
10) _____

11)



11) _____

12)



12) _____

Find the function value.

13) Find $f(-2)$ when $f(x) = x^2 + 5x - 7$.

13) _____

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

14) _____

15) $f(x) = \frac{x - 9}{2x + 13}$; $f(-7)$

15) _____

16) Find $f(x + 3)$ when $f(x) = -2x + 5$.

16) _____

17) $f(x) = \frac{x^2 + 7}{x^3 + 5x}$; $f(-2)$

17) _____

18) Find $f(-12)$ when $f(x) = -4x + 2$.

18) _____

Solve the problem.

19) The cost C , in dollars, to produce graphing calculators is given by the function $C(x) = 44x + 4000$, where x is the number of calculators produced. What is the cost to produce 1300 calculators?

19) _____

20) A projectile is fired from a cliff 200 feet above the water at an inclination of 45° to the horizontal, with a muzzle velocity of 70 feet per second. The height h of the projectile above the water is given by $h(x) = \frac{-32x^2}{(70)^2} + x + 200$, where x is the horizontal distance of the projectile from the base of the cliff. Find the maximum height of the projectile.

20) _____

21) A projectile is fired from a cliff 300 feet above the water at an inclination of 45° to the horizontal, with a muzzle velocity of 140 feet per second. The height h of the projectile above the water is given by $h(x) = \frac{-32x^2}{(140)^2} + x + 300$, where x is the horizontal distance of the projectile from the base of the cliff. How far from the base of the cliff is the height of the projectile a maximum?

21) _____

22) The volume V of a square-based pyramid with base sides s and height h is $V = \frac{1}{3}s^2h$. If the height is half of the length of a base side, express the volume V as a function of s . 22) _____

Find the domain of the function.

23) $f(x) = \frac{2x - 3}{x + 9}$ 23) _____

24) $s(t) = t^2 + 9$ 24) _____

25) $F(z) = \frac{z}{z^2 + 8}$ 25) _____

26) $H(q) = \frac{10q - 4}{8}$ 26) _____

27) $h(x) = 7x - 2$ 27) _____

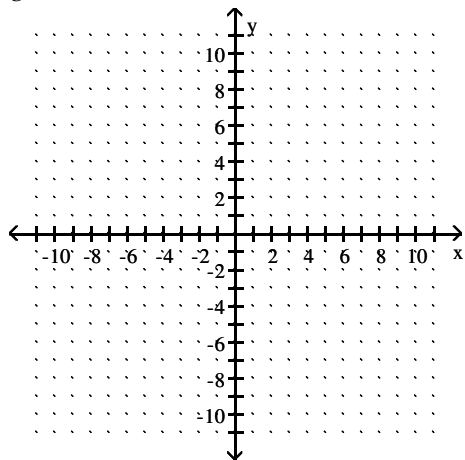
28) $f(x) = \frac{1}{7x + 4}$

28) _____

Graph the function.

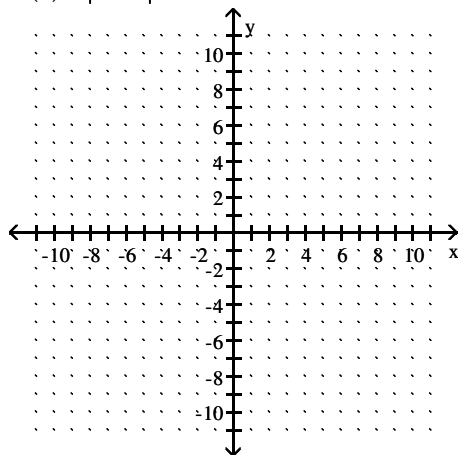
29) $g(x) = 2x - 10$

29) _____



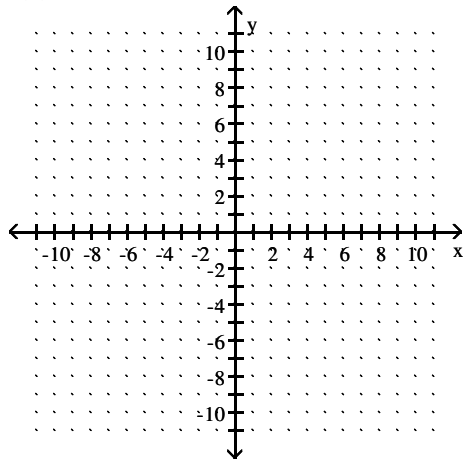
30) $G(x) = |x - 2|$

30) _____



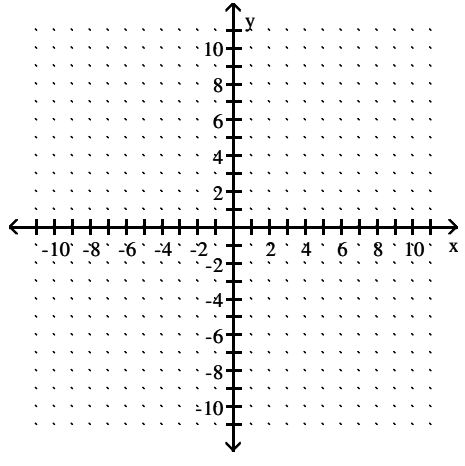
31) $f(x) = 2x + 8$

31) _____

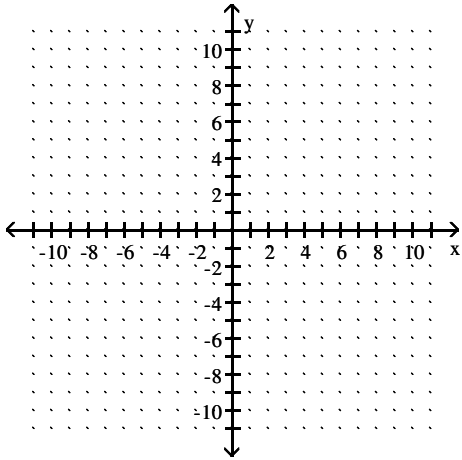


32) $F(x) = x^3 + 4$

32) _____



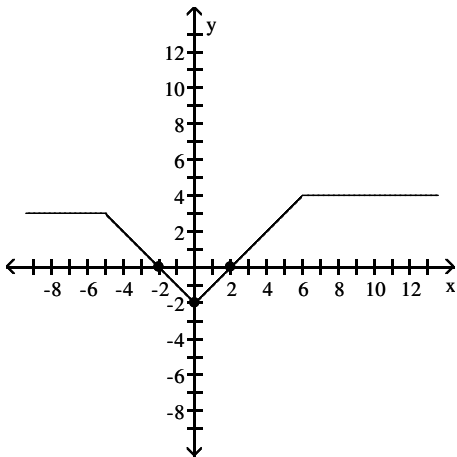
33) $g(x) = 2x - 4$



33) _____

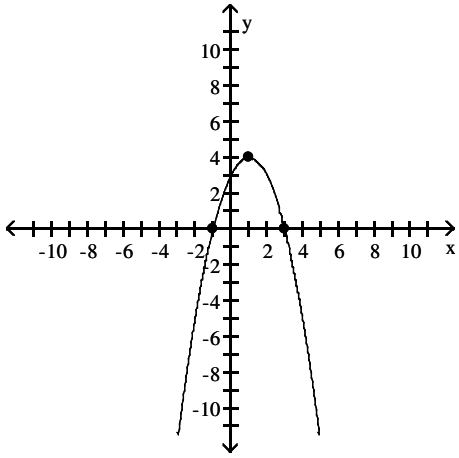
Find the domain, the range, and any intercepts.

34)



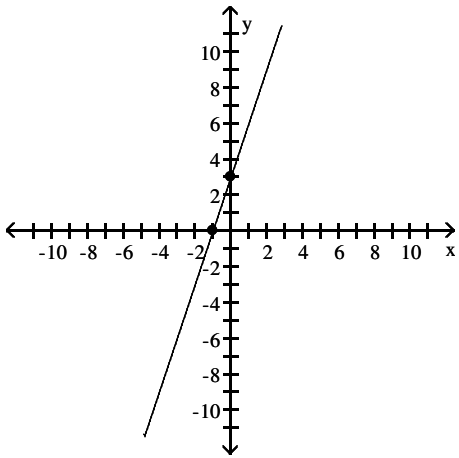
34) _____

35)



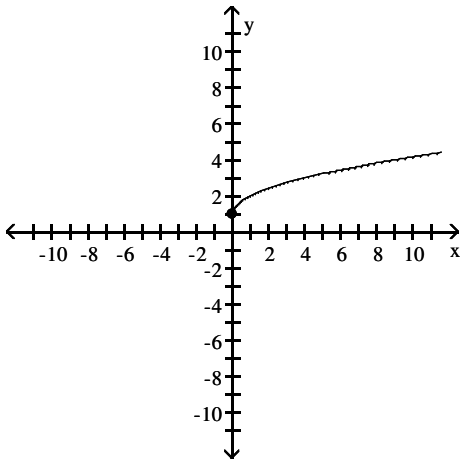
35) _____

36)



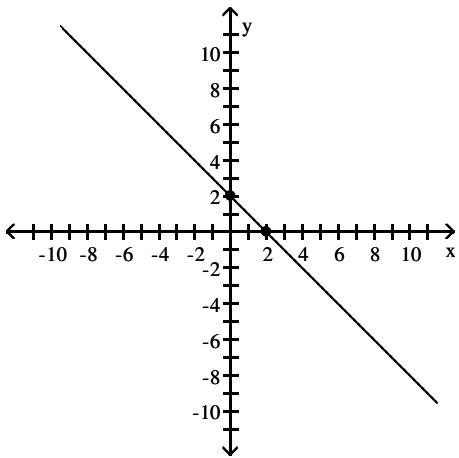
36) _____

37)



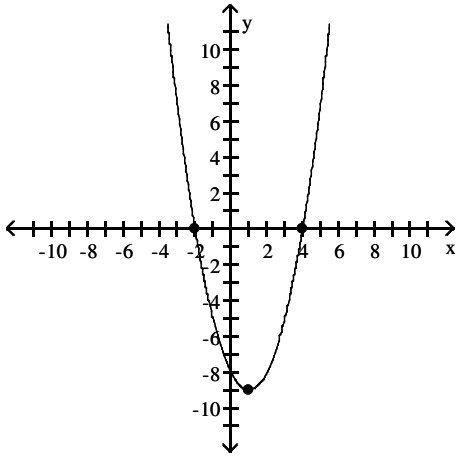
37) _____

38)



38) _____

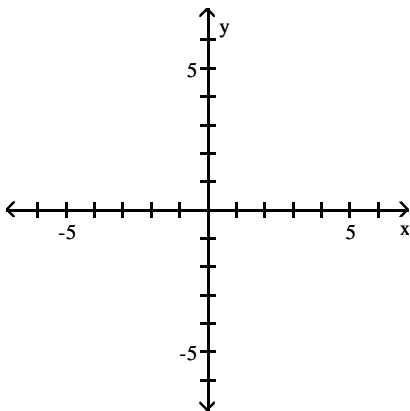
39)



39) _____

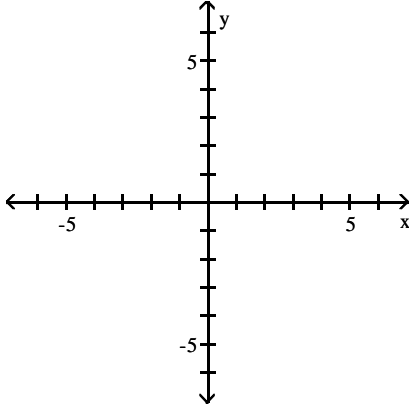
Sketch the graph of the function. Label at least three points.

40) $f(x) = x^3$



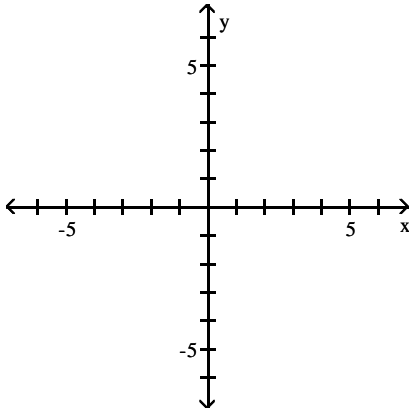
40) _____

41) $f(x) = \sqrt[3]{x}$



41) _____

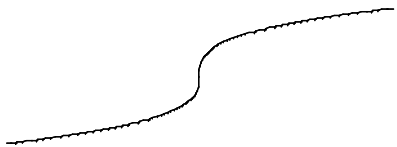
42) $f(x) = \sqrt{x}$



42) _____

Match the graph to the function listed whose graph most resembles the one given.

43)



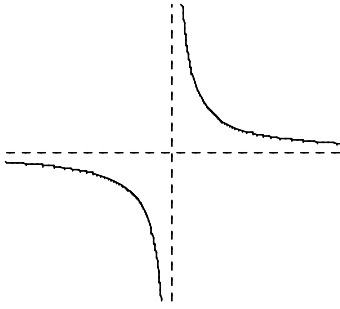
- A) square root function
- C) square function

- B) cube root function
- D) cube function

43) _____

44)

44) _____



- A) square root function
C) reciprocal function

- B) absolute value function
D) square function

Answer the question about the given function.

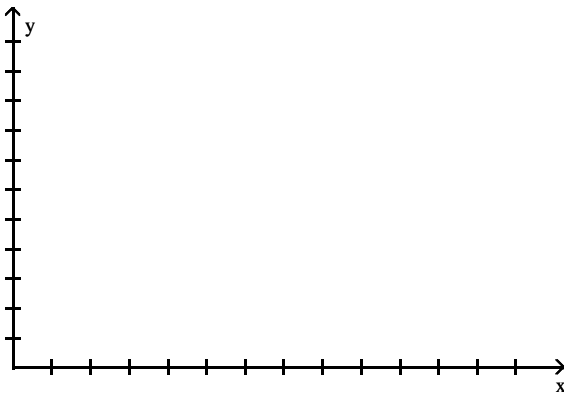
45) Given the function $f(x) = \frac{x^2 + 9}{x - 8}$, list the y-intercept, if there is one, of the graph of f .

45) _____

Solve.

46) Michael decides to walk to the mall to do some errands. He leaves home, walks 2 blocks in 7 minutes at a constant speed, and realizes that he forgot his wallet at home. So Michael runs back in 6 minutes. At home, it takes him 4 minutes to find his wallet and close the door. Michael walks 3 blocks in 9 minutes and then decides to jog to the mall. It takes him 10 minutes to get to the mall which is 4 blocks away. Draw a graph of Michael's distance from home (in blocks) as a function of time.

46) _____



Answer the question about the given function.

47) Given the function $f(x) = 3x^2 - 6x + 9$, what is the domain of f ?

47) _____

48) Given the function $f(x) = 3x^2 - 6x - 2$, is the point $(2, 4)$ on the graph of f ?

48) _____