

Decide whether the relation defines a function.

1) $\{(-3, 6), (1, -1), (5, 2), (9, 2), (12, 2)\}$ 1) _____

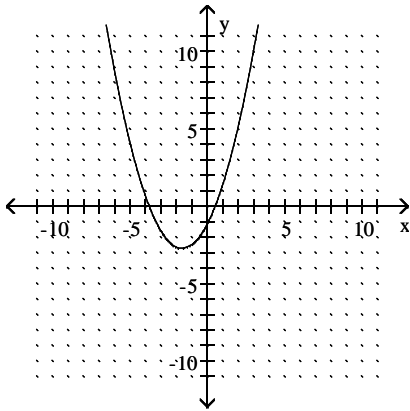
2) $\{(-2, 1), (-3, -6), (3, -4), (3, 6)\}$ 2) _____

3) $\{(-8, 2), (-8, 8), (1, -2), (5, 5), (9, 9)\}$ 3) _____

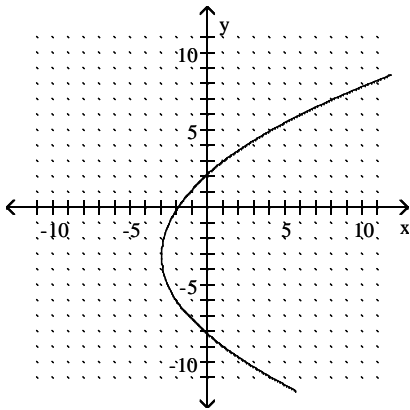
4) Student Test Score 4) _____

Name	Test Score
Bob L.	90
Susan H.	83
Jim H.	90
Bruce B.	96

5) 5) _____



6) 6) _____



7) $3x = 7 - 6y$ 7) _____

8) $y^2 = 7x$ 8) _____

9) $y = \sqrt{3x - 6}$ 9) _____

10) $y = x^2$ 10) _____

11) $xy = -3$

11) _____

12) $y = \frac{5}{x+3}$

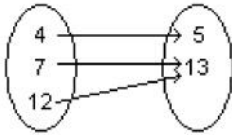
12) _____

Give the domain and range of the relation.

13) $\{(2, 7), (-1, -8), (-6, -5), (6, 0)\}$

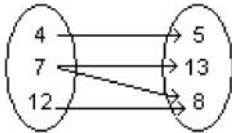
13) _____

14)



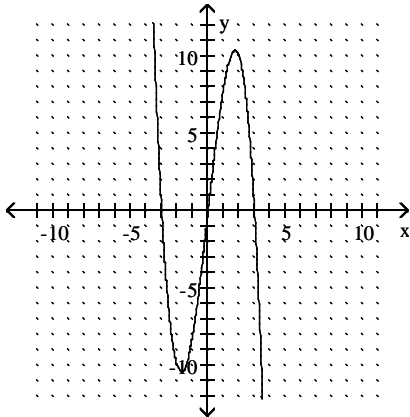
14) _____

15)



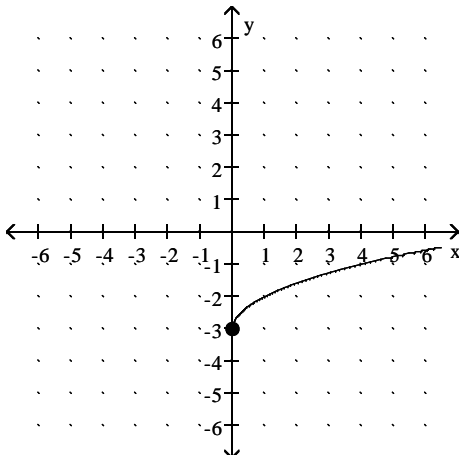
15) _____

16)



16) _____

17)



17) _____

18) $y = x^2 + 4$

18) _____

19) $y = 3x + 15$

19) _____

Evaluate the function.

20) Find $f\left(\frac{1}{4}\right)$ when $f(x) = 4x^2 - 4x - 1$

20) _____

21) Find $g(a - 1)$ when $g(x) = \frac{1}{5}x + 3$.

21) _____

22) Find $f(-x)$ when $f(x) = -2x^2 - 3x - 5$

22) _____

23) Find $f(k - 1)$ when $f(x) = 4x^2 + 3x + 4$

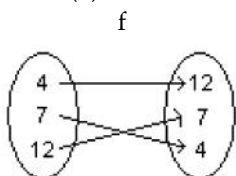
23) _____

24) Find $f(3)$ if $f = \{(-2, 3), (3, 0), (0, 5), (5, -2)\}$

24) _____

25) Find $f(7)$

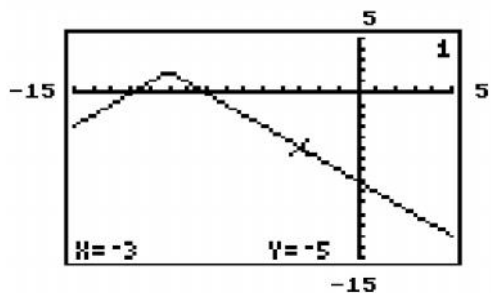
25) _____



The graph of $y = f(x)$ is given. Use the graph to find the function value.

26)

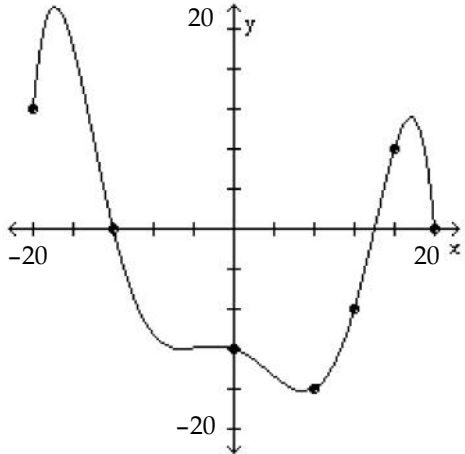
26) _____



Find $f(-3)$.

27) Find $f(16)$.

27) _____



An equation that defines y as a function of x is given. Solve for y in terms of x , and replace y with the function notation $f(x)$.

28) $x + 5y = 6$

28) _____

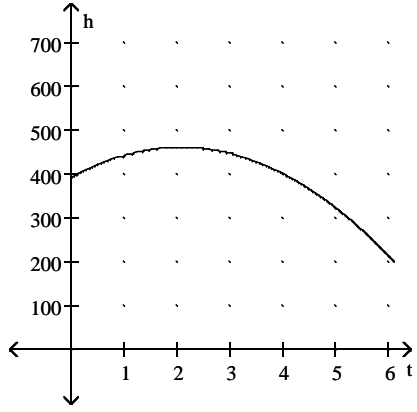
29) $y - 4x^2 = 5 - x$

29) _____

Use the graph to solve the problem.

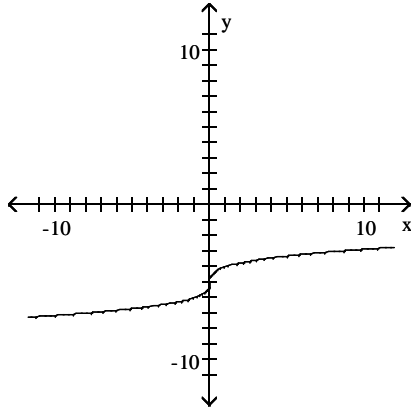
30) The height h in feet of a projectile thrown upward from the roof of a building after time t seconds is shown in the graph below. How high will the projectile be after 2.2 s?

30) _____



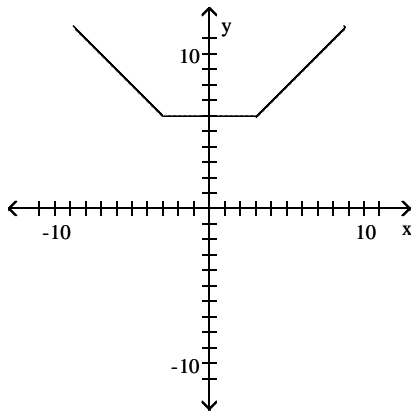
Determine the intervals over which the function is decreasing, increasing, and constant.

31)



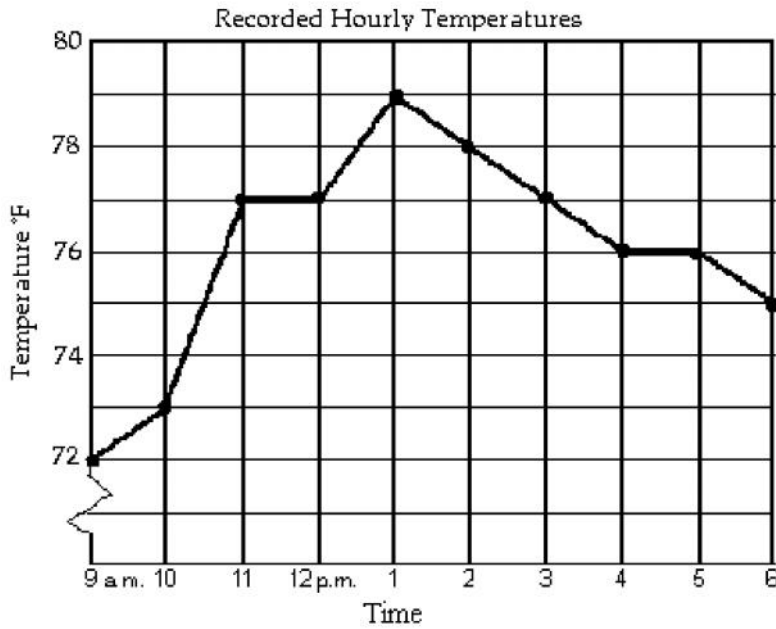
31) _____

32)



32) _____

The line graph shows the recorded hourly temperatures in degrees Fahrenheit at an airport.



33) At what time was the temperature the highest?

33) _____

34) At what time was the temperature its lowest?

34) _____

35) What temperature was recorded at 5 p.m.? 35) _____

36) During which hour did the temperature increase the most? 36) _____

37) At what time was the temperature 79°? 37) _____

- A) 12 p.m. B) 3 p.m. C) 1 p.m. D) 4 p.m.

38) During which two hour period did the temperature increase the most? 38) _____

39) At what times was the temperature higher than 77°F? 39) _____

40) At what times was the temperature below 77°F? 40) _____

Find the requested value.

41) $f(-4)$ for $f(x) = \begin{cases} 2x, & \text{if } x \leq -1 \\ x - 2, & \text{if } x > -1 \end{cases}$ 41) _____

42) $f(4)$ for $f(x) = \begin{cases} 7x + 7, & \text{if } x \leq 0 \\ 2 - 3x, & \text{if } 0 < x < 3 \\ x, & \text{if } x \geq 3 \end{cases}$ 42) _____

43) $f(7)$ for $f(x) = \begin{cases} 2x + 1, & \text{if } x < 1 \\ 7x, & \text{if } 7 \leq x \leq 9 \\ 7 - 9x, & \text{if } x > 9 \end{cases}$ 43) _____

44) $f(-8)$ for $f(x) = \begin{cases} 5x + 1, & \text{if } x < 8 \\ 8x, & \text{if } 8 \leq x \leq 10 \\ 8 - 8x, & \text{if } x > 10 \end{cases}$ 44) _____

Graph the function.

45) $f(x) = \begin{cases} 3, & \text{if } x \geq 1 \\ -4 - x, & \text{if } x < 1 \end{cases}$ 45) _____

46) $f(x) = \begin{cases} 4, & \text{if } x > -3 \\ -4, & \text{if } x \leq -3 \end{cases}$ 46) _____

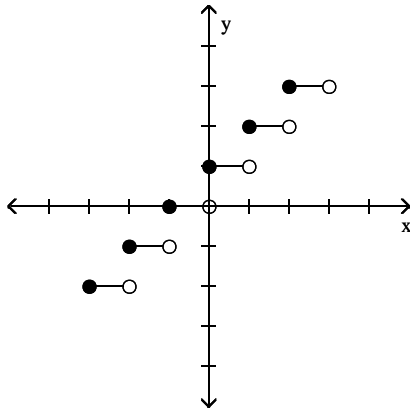
47) $f(x) = \begin{cases} 2x + 9, & \text{if } x < 0 \\ 2x^2 - 1, & \text{if } x \geq 0 \end{cases}$ 47) _____

48) $f(x) = \begin{cases} x^2 - 9, & \text{if } x < -1 \\ 0, & \text{if } -1 \leq x \leq 1 \\ x^2 + 9, & \text{if } x > 1 \end{cases}$ 48) _____

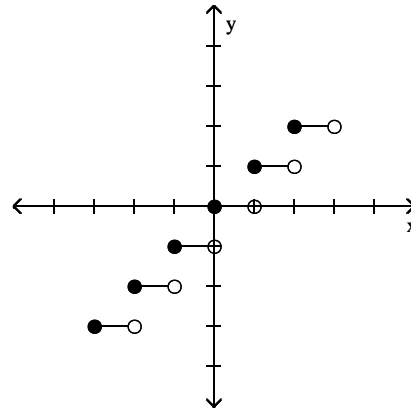
49) $f(x) = \lceil x \rceil + 1$

49) _____

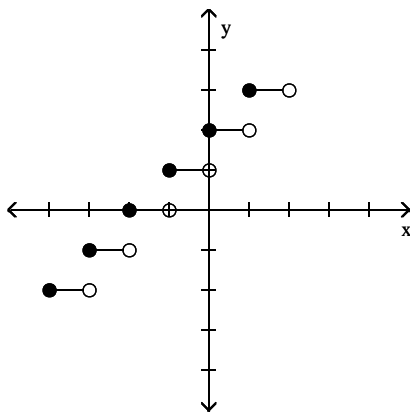
A)



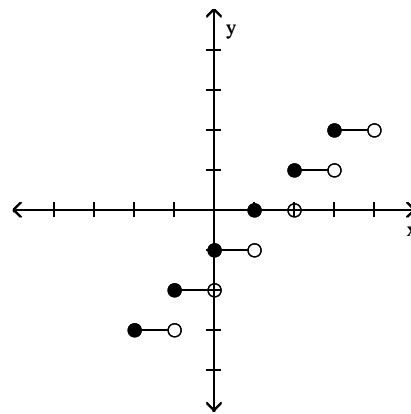
B)



C)



D)



50) $f(x) = \lfloor x \rfloor - 1$

50) _____

51) $f(x) = 2\lfloor x \rfloor$

51) _____

Solve the problem.

52) The charges for renting a moving van are \$65 for the first 20 miles and \$8 for each additional mile. 52) _____

Assume that a fraction of a mile is rounded up. (i) Determine the cost of driving the van 83 miles.

(ii) Find a symbolic representation for a function f that computes the cost of driving the van x miles, where $0 < x \leq 100$. (Hint: express f as a piecewise-constant function.)

A) \$5899;

$$f(x) = \begin{cases} 65x & \text{if } 0 < x \leq 20 \\ 65x + 8(x - 20) & \text{if } 20 < x \leq 100 \end{cases}$$

B) \$889;

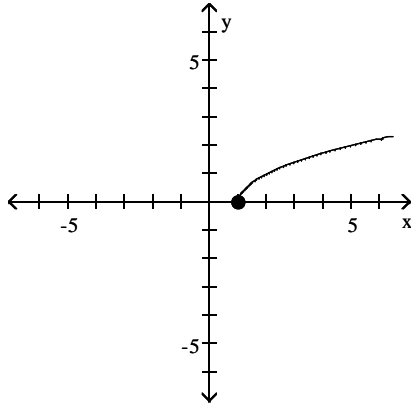
$$f(x) = \begin{cases} 65 & \text{if } 0 < x \leq 20 \\ 65 + 8(x + 20) & \text{if } 20 < x \leq 100 \end{cases}$$

C) \$569;

$$f(x) = \begin{cases} 65 & \text{if } 0 < x \leq 20 \\ 65 + 8(x - 20) & \text{if } 20 < x \leq 100 \end{cases}$$

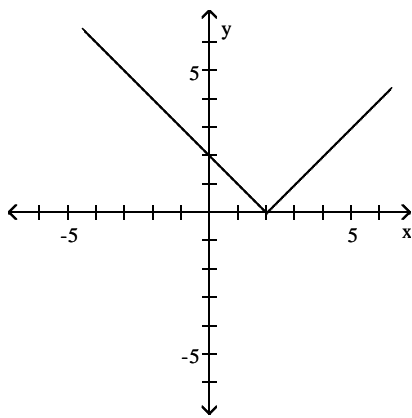
Match the correct function to the graph.

53)



53) _____

54)



54) _____

Write the equation of a sine function that has the given characteristics.

55) The graph of $y = x^2$, shifted 8 units upward

55) _____

56) The graph of $y = |x|$, shifted 9 units to the right

56) _____

57) The graph of $y = |x|$, shifted 7 units upward

57) _____

58) The graph of $y = \sqrt{x}$, shifted 5 units to the left

58) _____

Solve the problem.

59) Suppose that the x-intercepts of the graph of $y = f(x)$ are 2 and 3. What are the x-intercepts of $y = f(x - 6)$?

59) _____

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

60) $f(x) = (x - 2)^2 + 7$

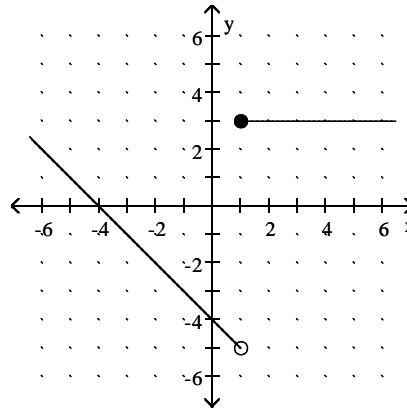
60) _____

Testgen questions still do not copy to other applications.

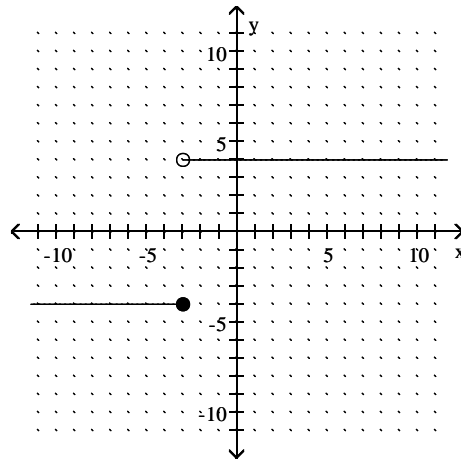
Answer Key
 Testname: PP3

- 1) Function
- 2) Not a function
- 3) Not a function
- 4) Function
- 5) Function
- 6) Not a function
- 7) Function
- 8) Not a function
- 9) Function
- 10) Function
- 11) Function
- 12) Function
- 13) domain: $\{-6, -1, 2, 6\}$; range: $\{-8, -5, 0, 7\}$
- 14) domain: $\{4, 7, 12\}$; range: $\{5, 13\}$
- 15) domain: $\{4, 7, 12\}$; range: $\{5, 8, 13\}$
- 16) range: $(-\infty, \infty)$; domain: $(-\infty, \infty)$
- 17) domain: $[0, \infty)$; range: $[-3, \infty)$
- 18) domain: $(-\infty, \infty)$; range: $[4, \infty)$
- 19) domain: $(-\infty, \infty)$; range: $(-\infty, \infty)$
- 20) $-\frac{7}{4}$
- 21) $\frac{a + 14}{5}$
- 22) $-2x^2 + 3x - 5$
- 23) $4k^2 - 5k + 5$
- 24) 0
- 25) 4
- 26) -5
- 27) 8
- 28) $f(x) = -\frac{1}{5}x + \frac{6}{5}$
- 29) $f(x) = 4x^2 - x + 5$
- 30) 475 ft
- 31) Increasing for all reals; Decreasing \emptyset
- 32) Increasing $[3, \infty)$; Decreasing $(-\infty, -3]$; Constant $[-3, 3]$
- 33) 1 p.m.
- 34) 9 a.m.
- 35) 76°F
- 36) 10 a.m. to 11 a.m.
- 37) C
- 38) 9 a.m. to 11 a.m.
- 39) from 12 p.m. until 3 p.m.
- 40) from 9 a.m. until 11 a.m. and from 3 p.m. until 6 p.m.
- 41) -8
- 42) 4
- 43) 49
- 44) -39

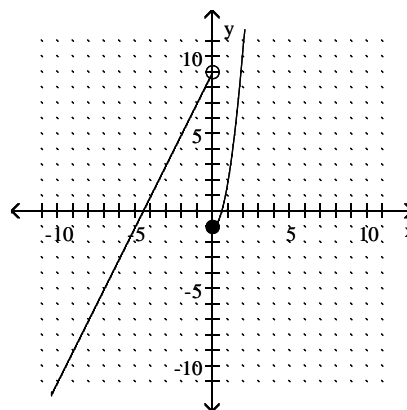
45)



46)

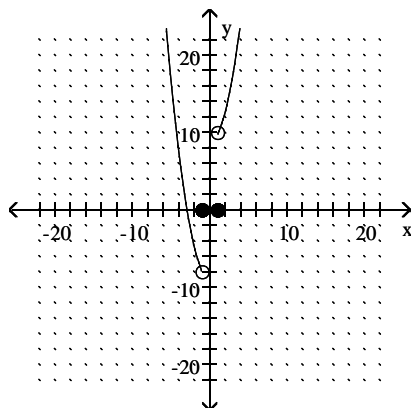


47)



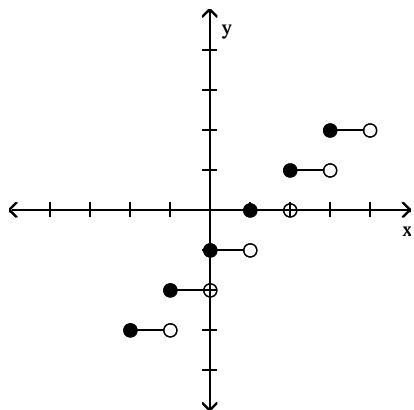
Answer Key
 Testname: PP3

48)

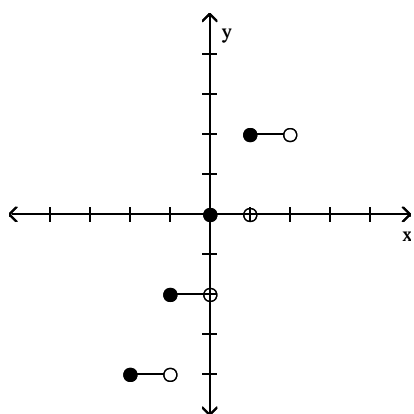


49) A

50)



51)



52) C

53) $y = \sqrt{x - 1}$

54) $y = |2 - x|$

55) $y = x^2 + 8$

56) $y = |x - 9|$

57) $y = |x| + 7$

58) $y = \sqrt{x + 5}$

59) 8 and 9

60)

