Math 141 Quiz 3 Preparation Ch.2.3 to 2.4 v02
NO BOOK/ NO NOTES/YES CALCUATOR
Dressler Winter 2016

Name_____

Decide whether the relation is a function.

1) {(–2, 7), (3, 4), (5, –5), (7, 7), (11, 9)} 1) _____

2) {(–3, –6), (–1, –8), (1, 5), (1, 4)} 2) _____

3) {(–5, 7), (–2, 1), (–1, –5), (5, 1)} 3) _____

Solve the problem.

4) Some values for a relation are given in the table. Is the relation a function? 4) _____

x	y
1	5
2	9
3	2
3	4
4	7

5) Some values for a relation are given in the table. Is the relation a function? 5) _____

x	y
5	3
6	4
7	6
8	6
9	15

Determine the domain and range of the relation. State whether the relation is a function or not a function.

6)

input	-9	-4	4	9
output	13	14	13	14

6) _____

7)

input	6	8	6	3
output	14	11	1	8

7) _____

8)

input	1	5	1	3
output	11	12	5	10

8) _____

9)

input	-5	-2	2	5
output	6	15	6	15

9) _____

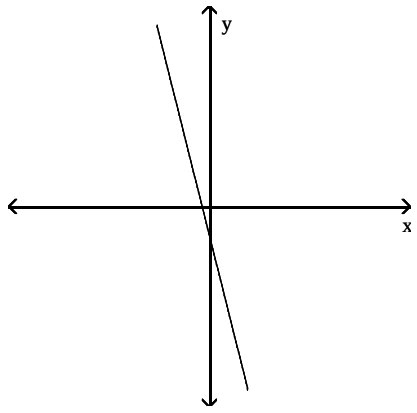
10)

input	-4	-3	3	4
output	3	5	3	5

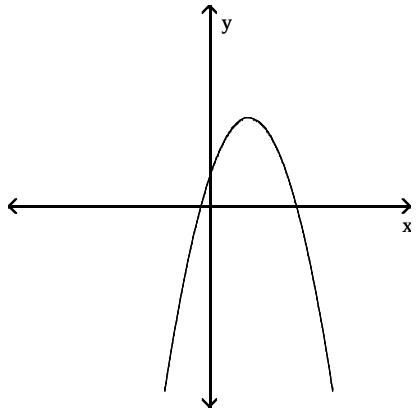
10) _____

Use the vertical line test on the graph to determine if y is a function of x.

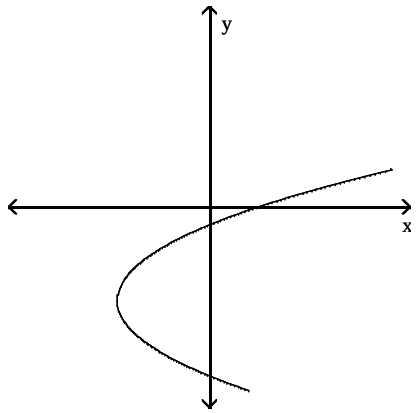
11)



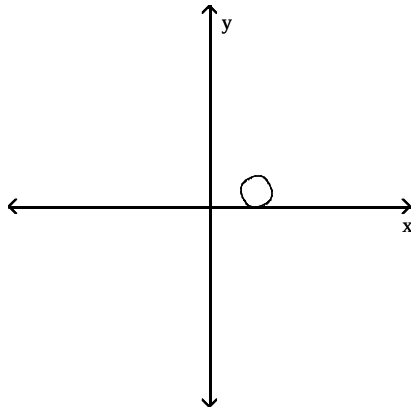
11) _____

12) 

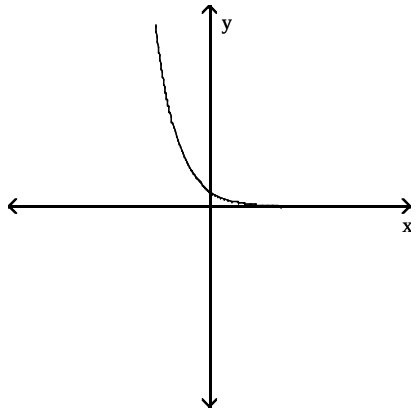
12) _____

13) 

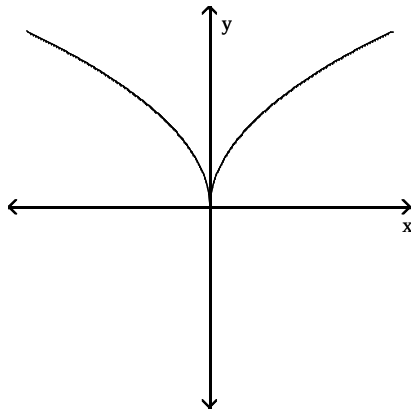
13) _____

14) 

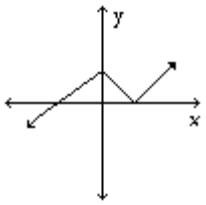
14) _____

15) 

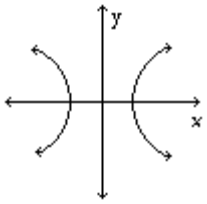
15) _____

16) 

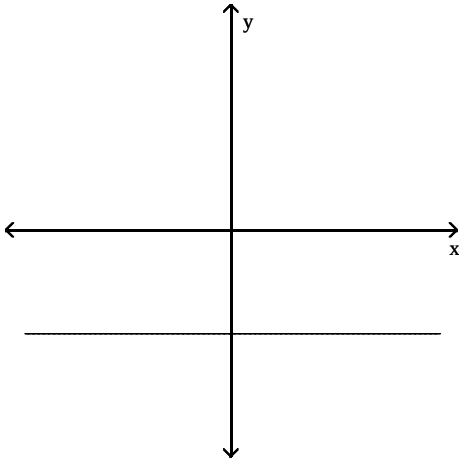
16) _____

17) 

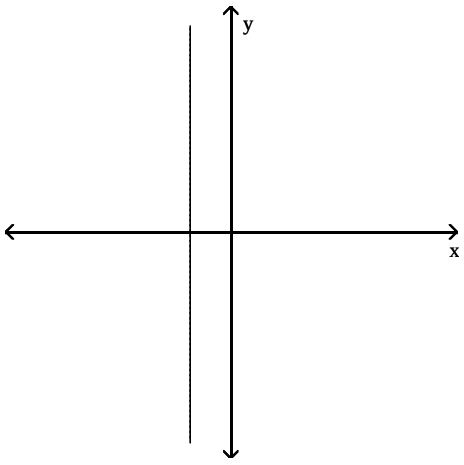
17) _____

18) 

18) _____

19) 

19) _____

20) 

20) _____

Find the domain of the function.

21) $\frac{x}{\sqrt{x-2}}$ 21) _____

22) $\frac{x}{\sqrt{x-6}}$ 22) _____

23) $f(x) = \frac{1}{x+8}$ 23) _____

24) $f(x) = \frac{1}{x+2}$ 24) _____

25) $f(x) = \frac{6x}{x+5}$ 25) _____

26) $f(x) = \frac{8x}{x+4}$ 26) _____

27) $f(x) = x - \frac{8}{x-3}$ 27) _____

28) $f(x) = x - \frac{3}{x+8}$ 28) _____

29) $f(x) = \frac{1}{x - 4} + \frac{4}{x - 3}$ 29) _____

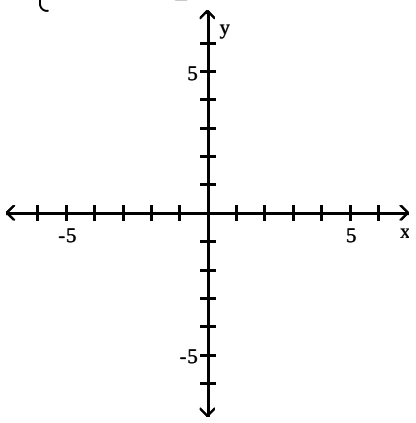
30) $f(x) = \frac{1}{x - 3} + \frac{4}{x - 7}$ 30) _____

31) $f(x) = \frac{1}{x - 9} + \frac{4}{x + 2}$ 31) _____

Graph the function.

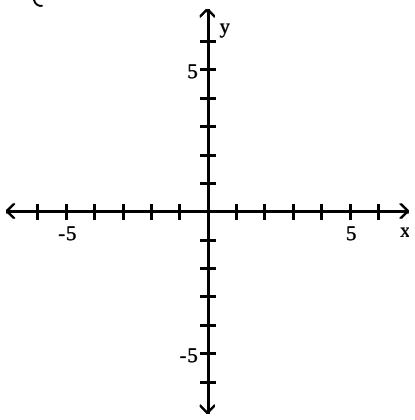
32) 32) _____

$$f(x) = \begin{cases} x + 4 & \text{if } x < 1 \\ 2 & \text{if } x \geq 1 \end{cases}$$



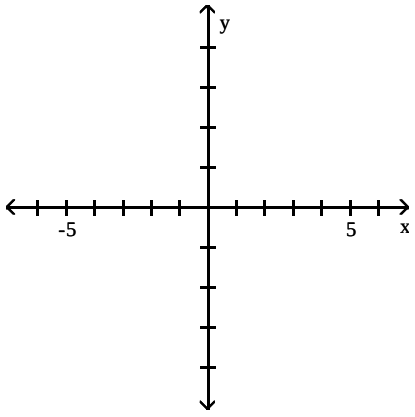
33) 33) _____

$$f(x) = \begin{cases} -x + 3 & \text{if } x < 2 \\ 2x - 3 & \text{if } x \geq 2 \end{cases}$$



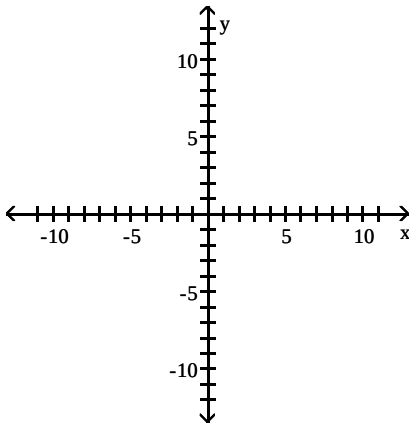
34) 34) _____

$$f(x) = \begin{cases} -x + 2 & x < 0 \\ \sqrt{x} + 3 & x \geq 0 \end{cases}$$



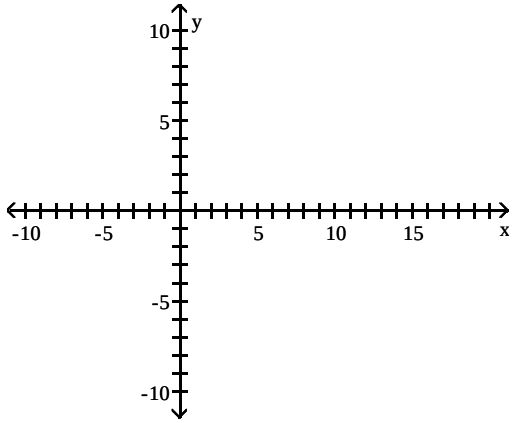
35) 35) _____

$$f(x) = \begin{cases} x + 2 & \text{if } -7 \le x < 4 \\ -9 & \text{if } x = 4 \\ -x + 6 & \text{if } x > 4 \end{cases}$$



36) 36) _____

$$f(x) = \begin{cases} 1 & \text{if } -1 \le x < 4 \\ |x| & \text{if } 4 \le x < 6 \\ \sqrt[3]{x} & \text{if } 6 \le x \le 13 \end{cases}$$



Find the domain of the function.

37) 37) _____

$$f(x) = \begin{cases} -4x & \text{if } x \ne 0 \\ -3 & \text{if } x = 0 \end{cases}$$

38) $f(x) = \begin{cases} 3x & \text{if } x \neq 0 \\ 2 & \text{if } x = 0 \end{cases}$ 38) _____

39) $f(x) = \begin{cases} 1 & \text{if } -7 \leq x < -1 \\ |x| & \text{if } -1 \leq x < 7 \\ \sqrt{x} & \text{if } 7 \leq x \leq 35 \end{cases}$ 39) _____

40) $f(x) = \begin{cases} 1 & \text{if } -5 \leq x < -4 \\ |x| & \text{if } -4 \leq x < 5 \\ \sqrt{x} & \text{if } 5 \leq x \leq 32 \end{cases}$ 40) _____

Locate any intercepts of the function.

41) $f(x) = \begin{cases} -5x + 9 & \text{if } x < 1 \\ 9x - 5 & \text{if } x \geq 1 \end{cases}$ 41) _____

42) $f(x) = \begin{cases} -2x + 6 & \text{if } x < 1 \\ 6x - 2 & \text{if } x \geq 1 \end{cases}$ 42) _____

43) $f(x) = \begin{cases} 1 & \text{if } -2 \leq x < -6 \\ |x| & \text{if } -6 \leq x < 2 \\ \sqrt{x} & \text{if } 2 \leq x \leq 19 \end{cases}$ 43) _____

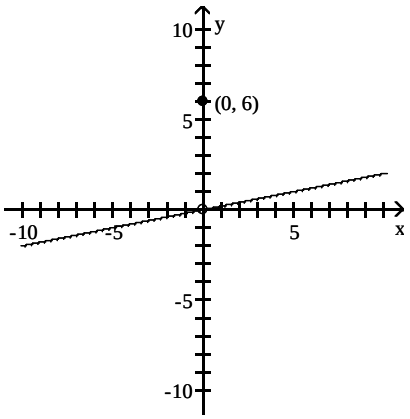
44) 44) _____

$$f(x) = \begin{cases} 1 & \text{if } -2 \le x < -3 \\ |x| & \text{if } -3 \le x < 2 \\ \sqrt[3]{x} & \text{if } 2 \le x \le 27 \end{cases}$$

Based on the graph, find the range of y = f(x).

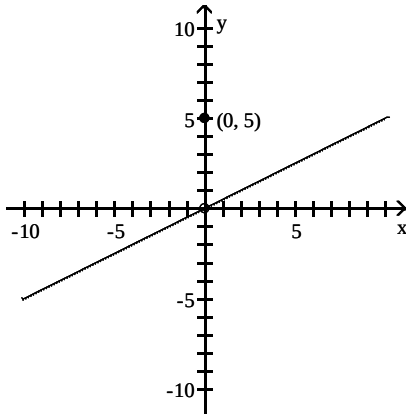
45) 45) _____

$$f(x) = \begin{cases} \frac{1}{5}x & \text{if } x \ne 0 \\ 6 & \text{if } x = 0 \end{cases}$$



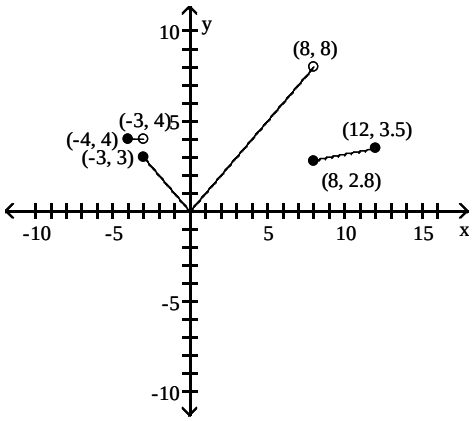
46) 46) _____

$$f(x) = \begin{cases} \frac{1}{2}x & \text{if } x \neq 0 \\ 5 & \text{if } x = 0 \end{cases}$$



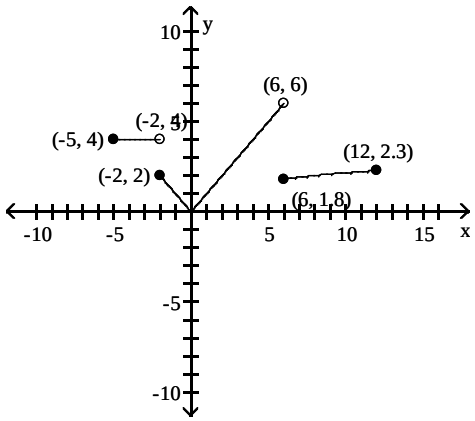
47) 47) _____

$$f(x) = \begin{cases} 4 & \text{if } -4 \le x < -3 \\ |x| & \text{if } -3 \le x < 8 \\ \sqrt{x} & \text{if } 8 \le x \le 12 \end{cases}$$



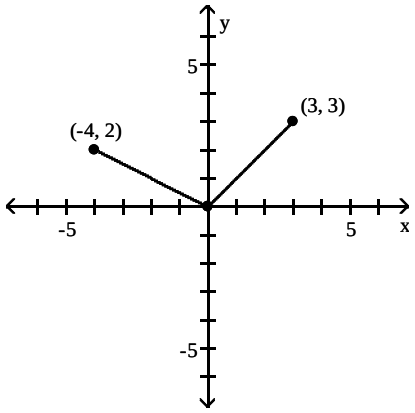
48) 48) _____

$$f(x) = \begin{cases} 4 & \text{if } -5 \le x < -2 \\ |x| & \text{if } -2 \le x < 6 \\ \sqrt[3]{x} & \text{if } 6 \le x \le 12 \end{cases}$$

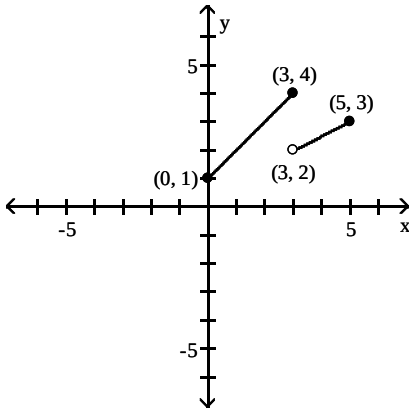


The graph of a piecewise–defined function is given. Write a definition for the function.

49) 49) _____

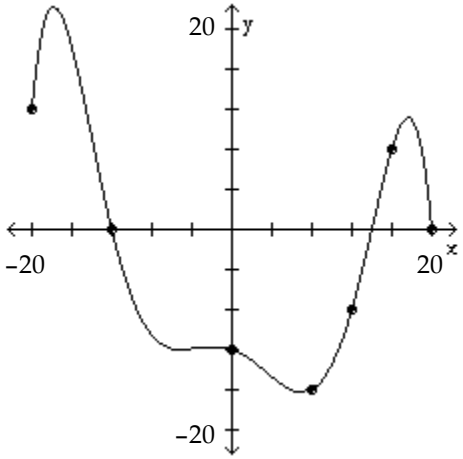


50) 50) _____

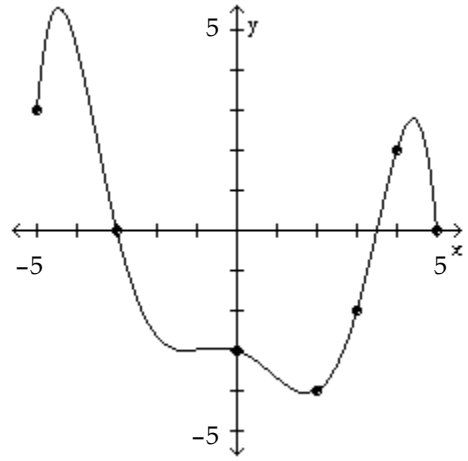


The graph of a function f is given. Use the graph to answer the question.

51) What is the domain of f? 51) _____

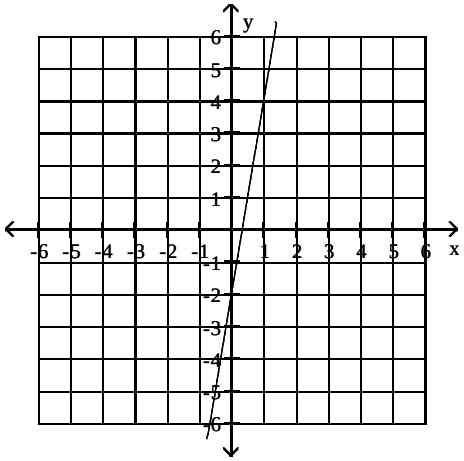


52) What is the domain of f? 52) _____

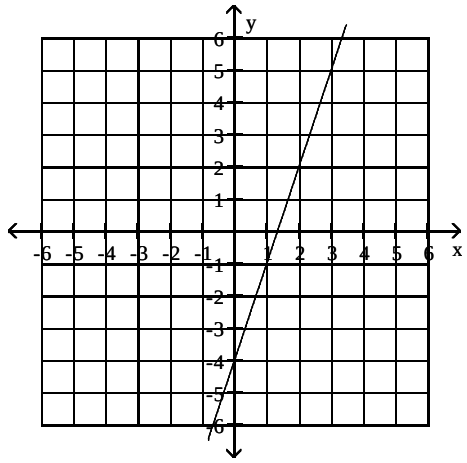


Use the graph to determine the function's domain and range.

53) 53) _____

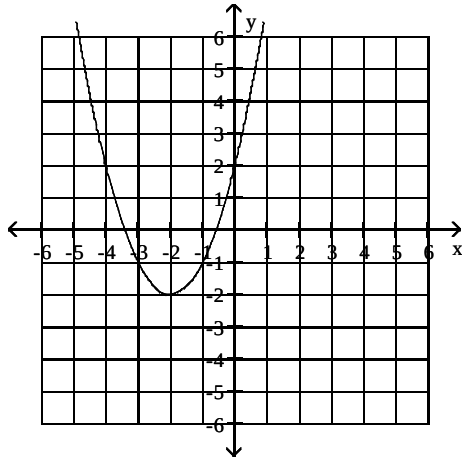


54)


y
x
6
5
4
3
2
1
-1
-2
-3
-4
-5
-6
-6 -5 -4 -3 -2 -1 1 2 3 4 5 6

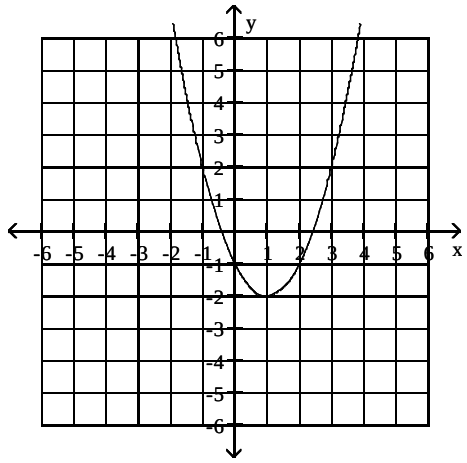
54) _____

55)


y
x
6
5
4
3
2
1
-1
-2
-3
-4
-5
-6
-6 -5 -4 -3 -2 -1 1 2 3 4 5 6

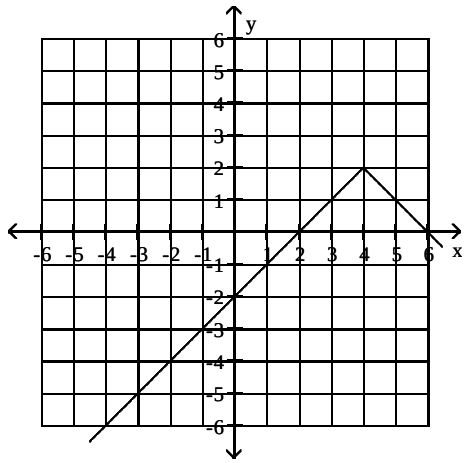
55) _____

56)


y
x
-6 -5 -4 -3 -2 -1 1 2 3 4 5 6
6 5 4 3 2 1 -1 -2 -3 -4 -5 -6

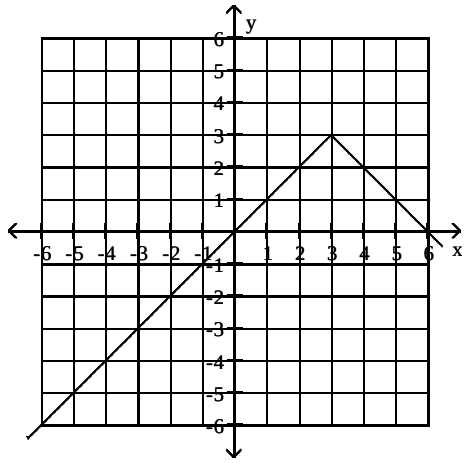
56) _____

57)


y
x
-6 -5 -4 -3 -2 -1 1 2 3 4 5 6
6 5 4 3 2 1 -1 -2 -3 -4 -5 -6

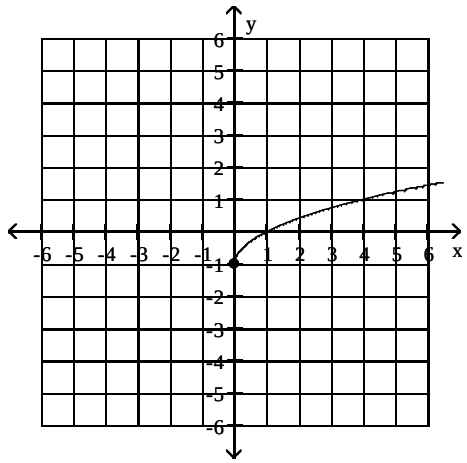
57) _____

58)



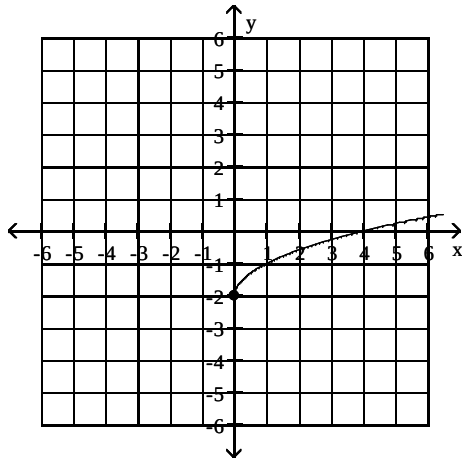
58) _____

59)



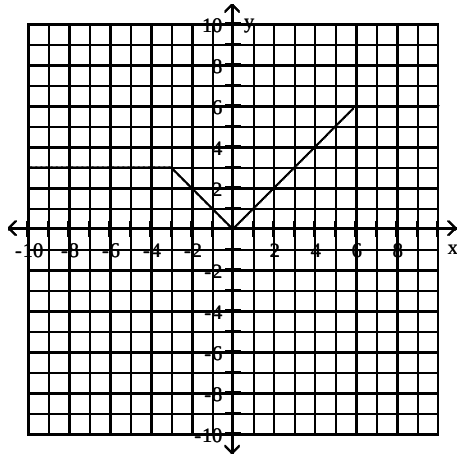
59) _____

60)



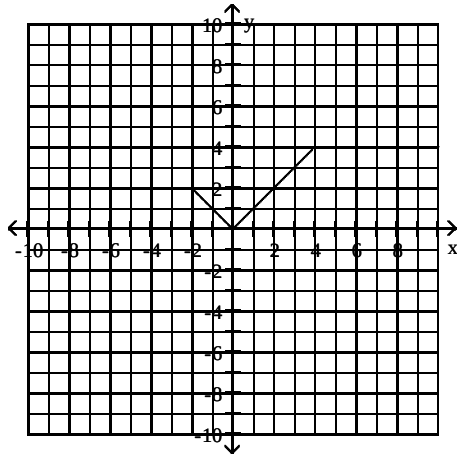
60) _____

61)



61) _____

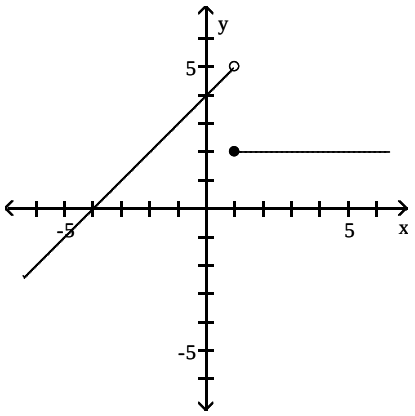
62)



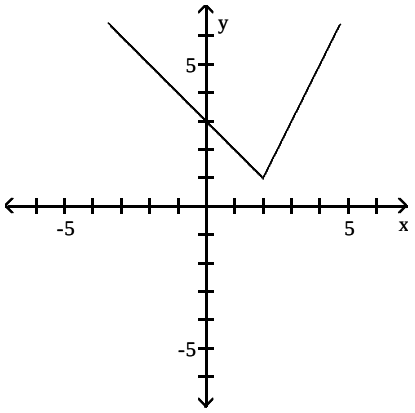
62) _____

1) Function
2) Not a function
3) Function
4) No
5) Yes
6) domain: {-9,-4, 4, 9}
   range: { 13, 14}
   function
7) domain: {6, 3, 8}
   range: {1, 8, 11, 14}
   not a function
8) domain: {1, 3, 5}
   range: {5, 10, 12, 11}
   not a function
9) domain: {-5,-2, 2, 5}
   range: { 6, 15}
   function
10) domain: {-4,-3, 3, 4}
    range: { 3, 5}
    function
11) Function
12) Function
13) Not a function
14) Not a function
15) Function
16) Function
17) Function
18) Not a function
19) Function
20) Not a function
21) $(2, \infty)$
22) $(6, \infty)$
23) $(-\infty, -8) \cup (-8, \infty)$
24) $(-\infty, -2) \cup (-2, \infty)$
25) $(-\infty, -5) \cup (-5, \infty)$
26) $(-\infty, -4) \cup (-4, \infty)$
27) $(-\infty, 3) \cup (3, \infty)$
28) $(-\infty, -8) \cup (-8, \infty)$
29) $(-\infty, 3) \cup (3, 4) \cup (4, \infty)$
30) $(-\infty, 7) \cup (7, 3) \cup (3, \infty)$
31) $(-\infty, -2) \cup (-2, 9) \cup (9, \infty)$

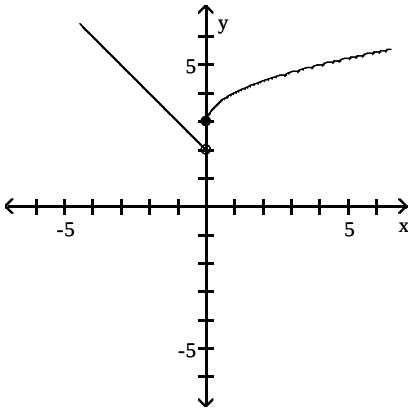
32)



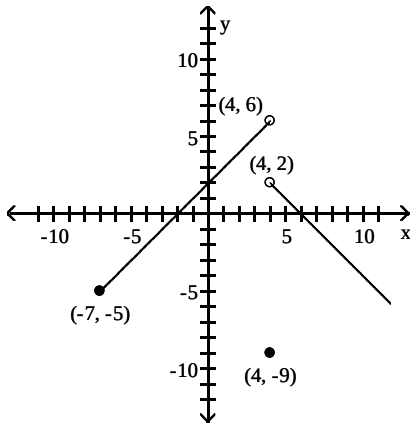
33)



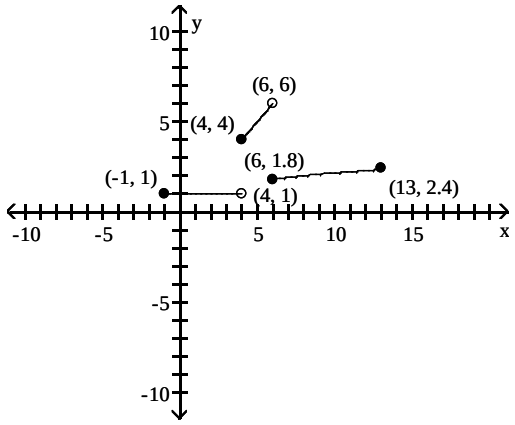
34)



35)



36)



37) all real numbers
38) all real numbers
39) $\{x \mid -7 \le x \le 35\}$
40) $\{x \mid -5 \le x \le 32\}$
41) (0, 9)
42) (0, 6)
43) (0, 0)
44) (0, 0)
45) $(-\infty, 0)$ or $(0, \infty)$
46) $(-\infty, 0)$ or $(0, \infty)$
47) [0, 8)
48) [0, 6)
49)

$$f(x) = \begin{cases} -\frac{1}{2}x & \text{if } -4 \le x \le 0 \\ x & \text{if } 0 < x \le 3 \end{cases}$$

50)

$$f(x) = \begin{cases} x + 1 & \text{if } 0 \le x \le 3 \\ \frac{1}{2}x + \frac{1}{2} & \text{if } 3 < x \le 5 \end{cases}$$

51) $\{x \mid -20 \le x \le 20\}$
52) $\{x \mid -5 \le x \le 5\}$

53) domain: $(-\infty, \infty)$
range: $(-\infty, \infty)$
54) domain: $(-\infty, \infty)$
range: $(-\infty, \infty)$
55) domain: $(-\infty, \infty)$
range: $[-2, \infty)$
56) domain: $(-\infty, \infty)$
range: $[-2, \infty)$
57) domain: $(-\infty, \infty)$
range: $(-\infty, 2]$
58) domain: $(-\infty, \infty)$
range: $(-\infty, 3]$
59) domain: $[0, \infty)$
range: $[-1, \infty)$
60) domain: $[0, \infty)$
range: $[-2, \infty)$
61) domain: $(-\infty, \infty)$
range: $[0, 6]$
62) domain: $(-\infty, \infty)$
range: $[0, 4]$