

1. 90% of what number is 63?

- a. 70
- b. 7
- c. 56.7
- d. 700

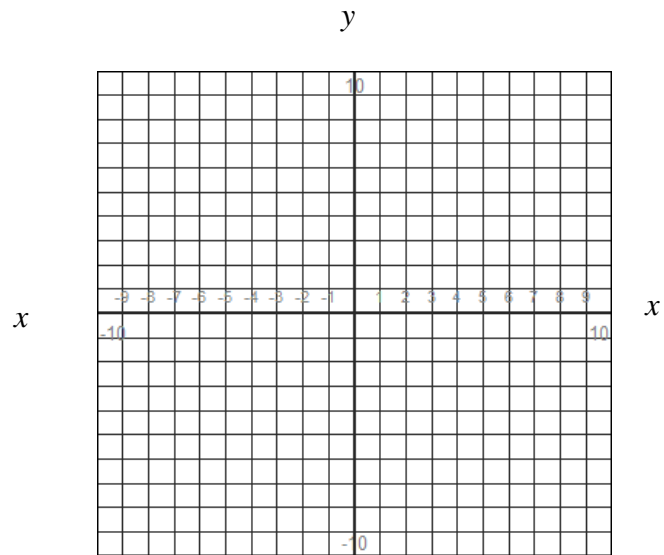
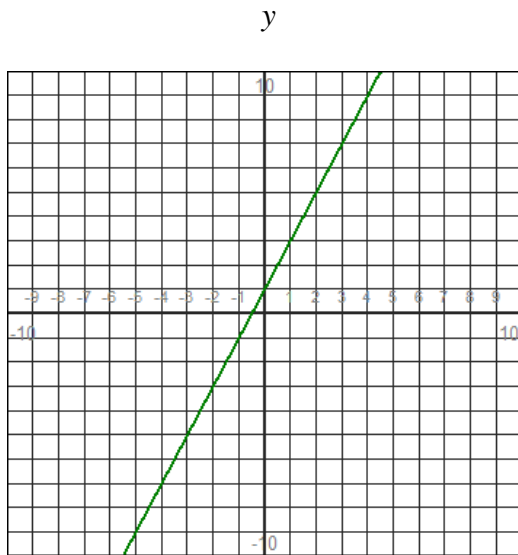
2. If  $f(x) = \frac{2}{x+10}$  and  $g(x) = x+5$ , find the domain of the composition  $(f \circ g)(x)$ .

- a.  $(-\infty, -15) \cup (-15, \infty)$
- b.  $(-\infty, -10) \cup (-10, \infty)$
- c.  $(-\infty, -10) \cup (-10, -5) \cup (-5, \infty)$
- d.  $(-\infty, \infty)$

3. If  $(9, 9)$  and  $(5, 1)$  represent the endpoints of the diameter of a circle, what is the center of the circle?

- a.  $(2, 4)$
- b.  $(4, 8)$
- c.  $(14, 10)$
- d.  $(7, 5)$

4. The graph shown below is a one-to-one function. Use the graph to sketch the graph of its inverse. You may assume that each tick mark represents one unit.



5. After a 13% price reduction, a boat sold for \$26,970. What was the price before the reduction?
- \$30,476.10
  - \$3,506.10
  - \$207,461.54
  - \$31,000.00
6. For which pair of points below is the distance between them equal to 13?
- (5, 3), (-17, 8)
  - (-5,-3), (8, 17)
  - (-5, 3), (-17, 8)
  - (5,-3), (-8, 17)
7. If  $f(x) = \sqrt{8x+4}$  and  $g(x) = \sqrt{2x-4}$ , find the domain of  $(f \cdot g)(x)$ .
- $[0, \infty)$
  - $[-2, \infty)$
  - $[2, \infty)$
  - $(-\infty, \infty)$
8. Describe the transformation from  $f(x) = |x|$  to  $f(x) = |x-3|-1$ .
- The graph is shifted left 3 units and down one unit.
  - The graph is shifted right 3 units and down one unit.
  - The graph is shifted left one unit and down 3 units.
  - The graph is shifted right one unit and down 3 units.
9. Given that  $f(x) = \frac{7x+1}{5}$ , what is  $f^{-1}(x)$ ?
- $f^{-1}(x) = \frac{5x+1}{7}$
  - $f^{-1}(x) = \frac{5}{7x+1}$
  - $f^{-1}(x) = \frac{5x-1}{7}$
  - $f^{-1}(x) = \frac{5}{7x-1}$
10. Given  $f(x) = x^2 - 2x + 4$ ;  $g(x) = x^2 - 2x + 2$ , find  $(f \circ g)(-2)$ .
- 124
  - 84
  - 80
  - 128

11. Answer questions a-e based on the given tables.

$x$	$f(x)$
-3	-3
-2	-1
-1	1
0	3
1	5
2	7
3	9

$x$	$g(x)$
-3	-10
-2	-7
-1	-4
0	-1
1	2
2	5
3	8

- a)  $f(g(0)) =$   
 b)  $g(f(-2)) =$   
 c)  $(f \circ g)(1) =$   
 d)  $(g \circ f)(-3) =$   
 e)  $f^{-1}(g(2)) =$

12. If the domains of  $f$ ,  $g$ , and  $h$  are all positive numbers

and  $f(x) = \sqrt{x}$ ,  $g(x) = \frac{1}{\sqrt{x}}$ , and  $h(x) = x^2$ , which functions are inverses of each other?

- a.  $f(x)$  and  $h(x)$   
 b.  $f(x)$  and  $g(x)$   
 c.  $g(x)$  and  $h(x)$   
 d. none

13. Find  $(f - g)(x)$  for  $f(x) = \frac{1}{x^2}$  and  $g(x) = x$ .

- a.  $\frac{1}{x^2}$       b.  $\frac{1-x^3}{x^2}$       c.  $\frac{1}{x^3}$       d.  $\frac{x^2}{1-x^3}$

14. Find the function  $g(x)$  that is the reflection of  $f(x) = \sqrt{x}$  in the  $y$ -axis.

- a.  $g(x) = \sqrt{x-1}$   
 b.  $g(x) = \sqrt{-x}$   
 c.  $g(x) = -\sqrt{x-1}$   
 d.  $g(x) = -\sqrt{x}$

15. If  $f(x) = 3 - 4x$  and  $g(x) = x^2 + 4$ , find (a)  $(g \circ f)(x)$  and (b)  $(f \circ g)(x)$ .

- a. (a)  $x^2 - 4x + 7$   
(b)  $16x^2 - 24x + 13$
- b. (a)  $-4x^2 - 13$   
(b)  $x^2 - 4x - 7$
- c. (a)  $x^2 - 4x - 7$   
(b)  $16x^2 - 13x - 24$
- d. (a)  $16x^2 - 24x + 13$   
(b)  $-4x^2 - 13$

16. Solve  $\frac{3x}{x-1} + 2 = \frac{3}{x-1}$ .

- a.  $x = 1$
- b.  $x = 2$
- c.  $x = \frac{1}{5}$
- d. This equation has no solution.

17. A rectangle that is 24 meters long has the same area as a square with 12 meter sides. What is the width of the rectangle?

- a. 12 meters
- b. 2 meters
- c. 6 meters
- d. There is not enough information given to solve the problem.

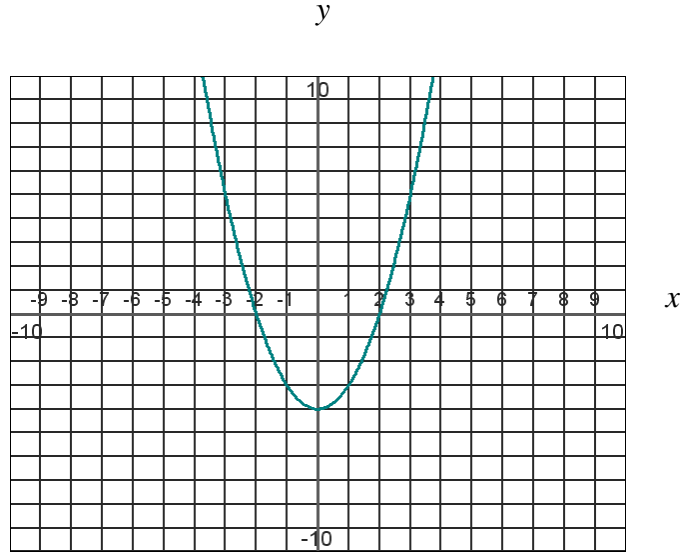
18. The point  $(10, -4)$  lies on a circle centered at  $(7, -8)$ . Find the equation of the circle in standard form.

- a.  $(x-7)^2 + (y+8)^2 = 25$
- b.  $(x-7)^2 + (y+8)^2 = 5$
- c.  $(x+8)^2 + (y-7)^2 = 25$
- d.  $(x+8)^2 + (y-7)^2 = 5$

19. If  $f(x) = \frac{1}{x-1}$  and  $g(x) = \frac{1}{x}$ , find the domain of the composition  $(f \circ g)(x)$ .

- $(-\infty, 0) \cup (1, \infty)$
- $(-\infty, 0) \cup (0, 1)$
- $(-\infty, 0) \cup (0, 1) \cup (1, \infty)$
- $(-\infty, \infty)$

20. What is true of the function shown below? You may assume that each tick mark represents one unit.



- This function is one-to-one.
- The range of the function is  $[-3, \infty)$ .
- $f(0) = -2$ .
- The function is the graph of  $f(x) = x^2$  shifted two units to the right.

## Key Review Test 2

1. a

2. a

3. d

4.  $y = \frac{x-1}{2}$  could use (3, 1) and (1, 0)

5. d

6. c

7. c

8. b

9. c

10. b

11. a. 1

b. -4

c. 7

d. -10

e. 1

12. a

13. b

14. b

15. d

16. d

17. c

18. a

19. c

20. b