

# Chapter 6 Test

## Form A

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Name \_\_\_\_\_

Date \_\_\_\_\_

1. Determine whether the relation is a function.

$(0, 4), (1, 4), (2, 5), (3, 6), (4, 6)$

1. \_\_\_\_\_

2. Find  $f(\frac{2}{3})$ .

$$f(x) = 18x^2 - 12x - 3$$

2. \_\_\_\_\_

3. **Geometry** The surface area of a sphere with radius  $r$  is given by  $f(r) = 4\pi r^2$ . Find  $f(\frac{3}{2})$ .

3. \_\_\_\_\_

4. Find the domain and range of the function.

$$f(x) = \frac{2}{\sqrt{x-4}}$$

4. \_\_\_\_\_

In 5 and 6,  $f(x) = 3 - 2x$  and  $g(x) = 4x + 1$ .

5.  $h(x) = g(x) \div f(x)$ . Write the equation for  $h(x)$ .

5. \_\_\_\_\_

6. Find  $g(f(x))$ .

6. \_\_\_\_\_

7. What is the domain of  $h(x)$  in Problem 5?

7. \_\_\_\_\_

8. Find the inverse of the relation.

$(1, 7), (2, 5), (3, 3), (4, 1)$

8. \_\_\_\_\_

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9. Write an equation for the inverse of the relation.

$$y = -11x + 9$$

9. \_\_\_\_\_

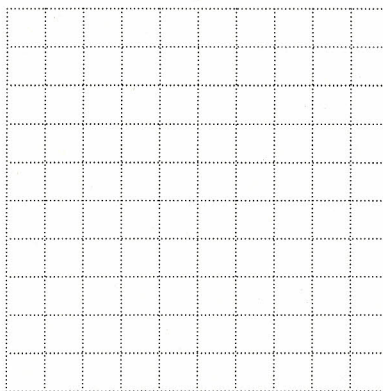
10. Are  $f$  and  $g$  inverses of each other?

$$g(x) = \frac{1}{2}x - \frac{1}{3}, f(x) = \frac{6x + 2}{3}$$

10. \_\_\_\_\_

11. Sketch the graph of the function. Is the inverse of  $f(x)$  a function?

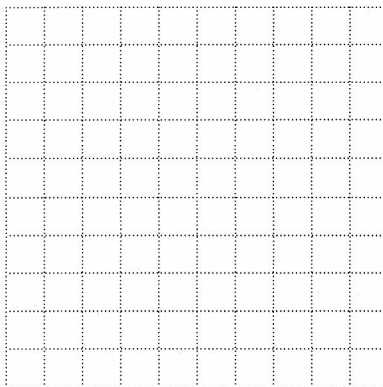
$$f(x) = 4 - x^2$$



11. \_\_\_\_\_  
*Use graph at left.*

12. Sketch the graph of the function and its inverse on the same coordinate plane.

$$f(x) = 2 - 2x$$



12. \_\_\_\_\_  
*Use graph at left.*

13. Evaluate  $f(-3)$ .  $f(x) = \begin{cases} -x^2 + 2x, & x \leq 1 \\ -2x + 3, & x > 1 \end{cases}$

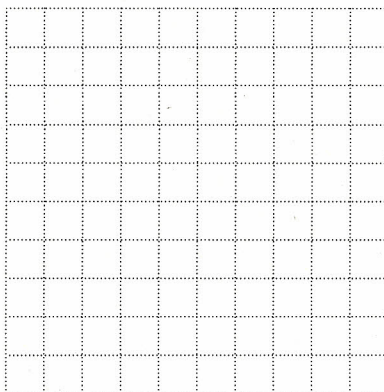
13. \_\_\_\_\_

14. Write  $f(x) = |x - 4|$  as a compound function.

14. \_\_\_\_\_

15. Sketch the graph of the function.

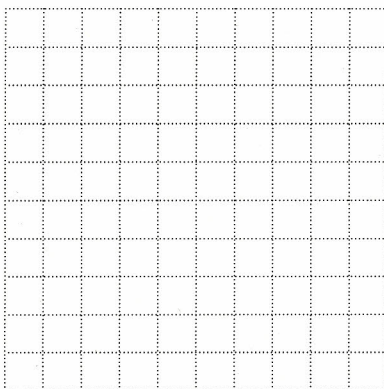
$$f(x) = \begin{cases} -x, & x \leq 0 \\ x^2, & x > 0 \end{cases}$$



15. Use graph at left.

16. Sketch the graph of the step function.

$$f(x) = \begin{cases} 5, & 0 \leq x < 5 \\ 10, & 5 \leq x < 10 \\ 15, & 10 \leq x < 15 \end{cases}$$



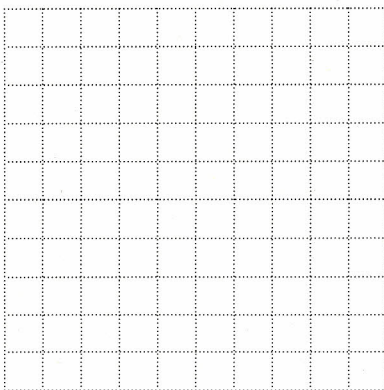
16. Use graph at left.

17. How is the graph of  $f(x) = x^2 - 5$  obtained from the graph of  $g(x) = x^2$ ?

17. \_\_\_\_\_

18. Sketch the graph of the function.

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



18. Use graph at left.

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## Form A

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19. Find the first five values of the recursive function.

$$f(1) = 5; f(n) = f(n - 1) - n$$

19. \_\_\_\_\_

20. **Shirt Prices** The data below represents the price of a shirt at ten stores. Find the *mean*, *median*, and *mode* of the data.

48, 33, 29, 52, 37, 44, 29, 35, 44, 29

20. \_\_\_\_\_

