

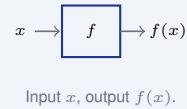
# Function Notation

Name: _____	Date: _____	Score: _____ / 18
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**Quick Review and Helpful Hints**

$f(x)$  means “the value of the function  $f$  at  $x$ .” To *evaluate*, substitute the given number everywhere you see  $x$  and simplify. To *solve*  $f(x) = k$ , set the rule equal to  $k$  and solve for  $x$ . The letter (like  $f, g, h$ ) is just a name.

▷ **Example:** Given  $f(x) = 4x - 9$ , find  $f(5)$ . **Work:** Substitute 5 for  $x$ :  $f(5) = 4(5) - 9 = 20 - 9$ .  
 ★ **Answer:** 11



◆ **Practice Problems**

Evaluate or solve as directed.

- |   |  |
|---|--|
| <p>1. <math>f(x) = 4x - 9</math>; <math>f(5) =</math> _____</p> <p>2. <math>g(x) = x^2 + 2</math>; <math>g(-3) =</math> _____</p> <p>3. <math>h(x) = -2x + 7</math>; <math>h(0) =</math> _____</p> <p>4. <math>f(x) = 3x^2 - x</math>; <math>f(2) =</math> _____</p> <p>5. <math>p(x) = \frac{x+6}{2}</math>; <math>p(8) =</math> _____</p> <p>6. <math>g(x) = 7 - 3x</math>; <math>g(-4) =</math> _____</p> <p>7. <math>f(x) = 2x + 5</math>; <math>f(x) = 17</math>, <math>x =</math> _____</p> | <p>8. <math>g(x) = x^2 - 1</math>; <math>g(x) = 24</math>, <math>x =</math> _____</p> <p>9. <math>h(x) = -x + 10</math>; <math>h(x) = 3</math>, <math>x =</math> _____</p> <p>10. <math>f(x) = 6x</math>; <math>f(x) = 42</math>, <math>x =</math> _____</p> <p>11. <math>f(x) = x^2 + 3x</math>; <math>f(-2) =</math> _____</p> <p>12. <math>g(x) =  x - 4 </math>; <math>g(1) =</math> _____</p> <p>13. <math>f(x) = 5x + 1</math>; <math>f(3) =</math> _____</p> <p>14. <math>f(x) = 2x - 3</math>; <math>f(x) = 9</math>, <math>x =</math> _____</p> |
|---|--|

◆ **Word Problems**

15. A function gives cost  $C(x) = 3x + 5$  for  $x$  items. Find  $C(4)$ . \_\_\_\_\_
16.  $f(x) = 2x + 1$  models a pattern. For what  $x$  is  $f(x) = 15$ ? \_\_\_\_\_
17. A ball's height is  $h(t) = 20 - 5t$  meters after  $t$  seconds. Find  $h(2)$ . \_\_\_\_\_
18. Given  $g(x) = x^2$ , find  $g(6)$ . \_\_\_\_\_



## Answer Keys

- |                                    |  |                                     |
|------------------------------------|--|-------------------------------------|
| 1. <input type="text" value="11"/> | 7. <input type="text" value="6"/>      | 13. <input type="text" value="16"/> |
| 2. <input type="text" value="11"/> | 8. <input type="text" value="x = ±5"/> | 14. <input type="text" value="6"/>  |
| 3. <input type="text" value="7"/>  | 9. <input type="text" value="7"/>      | 15. <input type="text" value="17"/> |
| 4. <input type="text" value="10"/> | 10. <input type="text" value="7"/>     | 16. <input type="text" value="7"/>  |
| 5. <input type="text" value="7"/>  | 11. <input type="text" value="-2"/>    | 17. <input type="text" value="10"/> |
| 6. <input type="text" value="19"/> | 12. <input type="text" value="3"/>     | 18. <input type="text" value="36"/> |

### Step-by-Step Explanations

1. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Substitute 5:  $4(5) - 9 = 20 - 9 = 11$ . So the final answer is 11.

2. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Substitute  $-3$ :  $(-3)^2 + 2 = 9 + 2 = 11$ . So the final answer is 11.

3. Step by step: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Substitute 0:  $-2(0) + 7 = 7$ . So the final answer is 7.

4. Take it one move at a time: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Substitute 2:  $3(2)^2 - 2 = 3(4) - 2 = 12 - 2 = 10$ . So the final answer is 10.

5. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Substitute 8:  $\frac{8+6}{2} = \frac{14}{2} = 7$ . So the final answer is 7.

6. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Substitute  $-4$ :  $7 - 3(-4) = 7 + 12 = 19$ . So the final answer is 19.

7. Step by step: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Set  $2x + 5 = 17$ . Subtract 5:  $2x = 12$ , so  $x = 6$ . So the final answer is 6.

8. Take it one move at a time: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Set  $x^2 - 1 = 24$ , so  $x^2 = 25$  and  $x = \pm 5$ . So the final answer is  $x = \pm 5$ .

9. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Set  $-x + 10 = 3$ . Then  $-x = -7$ , so  $x = 7$ . So the final answer is 7.

10. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Set  $6x = 42$ . Divide by 6:  $x = 7$ . So the final answer is 7.

11. Step by step: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Substitute  $-2$ :  $(-2)^2 + 3(-2) = 4 - 6 = -2$ . So the final answer is  $-2$ .

12. Take it one move at a time: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Substitute 1:  $|1 - 4| = |-3| = 3$ . So the final answer is 3.

13. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Substitute 3:  $5(3) + 1 = 15 + 1 = 16$ . So the final answer is 16.

14. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Set  $2x - 3 = 9$ . Add 3:  $2x = 12$ , so  $x = 6$ . So the final answer is 6.

15. Step by step: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Substitute 4:  $C(4) = 3(4) + 5 = 12 + 5 = 17$ . So the final answer is 17.

16. Take it one move at a time: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Set  $2x + 1 = 15$ . Subtract 1:  $2x = 14$ , so  $x = 7$ . So the final answer is 7.

17. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Substitute 2:  $20 - 5(2) = 20 - 10 = 10$  meters. So the final answer is 10.

18. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Substitute 6:  $6^2 = 36$ . So the final answer is 36.



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