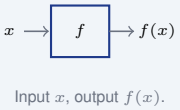
Function Notation

Name: _____	Date: _____	Score: _____ / 18

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



Input x, output $f(x)$.

Practice Problems

Evaluate or solve as directed.

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

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. $\boxed{11}$	**7.** $\boxed{6}$	**13.** $\boxed{16}$
2. $\boxed{11}$	**8.** $\boxed{x = \pm 5}$	**14.** $\boxed{6}$
3. $\boxed{7}$	**9.** $\boxed{7}$	**15.** $\boxed{17}$
4. $\boxed{10}$	**10.** $\boxed{7}$	**16.** $\boxed{7}$
5. $\boxed{7}$	**11.** $\boxed{-2}$	**17.** $\boxed{10}$
6. $\boxed{19}$	**12.** $\boxed{3}$	**18.** $\boxed{36}$

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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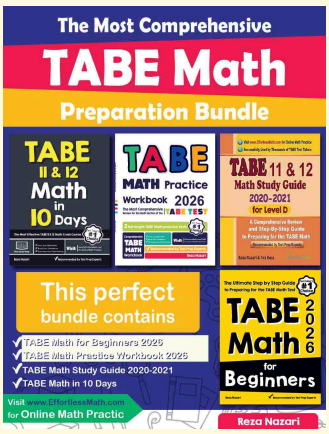

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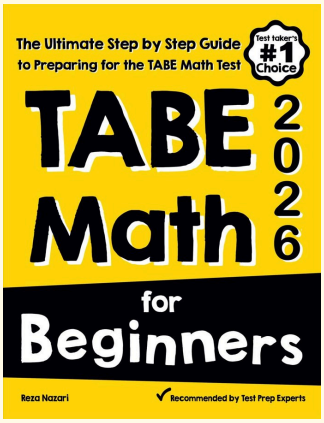

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