

Function Notation and Evaluating Functions

Algebra 1 • Section 4.2

Name: _____

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Quick Review and Helpful Hints

A function pairs each input with exactly one output. Pay attention to what the input means, what rule is being applied, and whether the question asks for a value, a rule, a domain, or an interpretation.

▷ **Example:** For $f(x) = 2x + 5$, find $f(4)$.

Work: Replace x with 4: $f(4) = 2(4) + 5 = 13$.

★ **Answer:** 13

◆ Practice Problems

Solve each problem. Show enough work that another student could follow your thinking.

1. For $f(x) = 3x - 2$, find $f(5)$. _____

6. For $a(t) = 12 + 6t$, find $a(0)$. _____

2. For $g(x) = x^2 + 4$, find $g(-3)$. _____

7. For $m(n) = 4n - 1$, find $m(n + 2)$. _____

3. For $h(x) = 2x + 7$, solve $h(x) = 19$. _____

8. If $f(2) = 9$ for $f(x) = ax + 1$, find a . _____

4. For $p(x) = 5 - x$, find $p(8)$. _____

9. For $r(x) = \frac{x}{3} + 5$, find $r(12)$. _____

5. For $f(x) = x^2 - 2x$, find $f(4)$. _____

10. For $q(x) = 2x^2 + 1$, find $q(-2)$. _____

◆ Word Problems

11. A car wash uses $C(w) = 8w + 12$. Find the cost for $w = 6$ washes. _____

12. A plant height is $H(d) = 15 + 2d$. What does $H(10)$ mean and equal? _____



Answer Keys

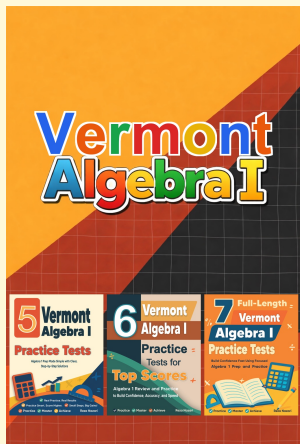
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|------------|------------------------------|
| 1. 13 | 7. $4n + 7$ |
| 2. 13 | 8. 4 |
| 3. $x = 6$ | 9. 9 |
| 4. -3 | 10. 9 |
| 5. 8 | 11. \$60 |
| 6. 12 | 12. Height after 10 days; 35 |

Step-by-Step Explanations

- $f(5)$ just means 'use 5 as x ': $3(5) - 2$ lands you at 13.
- Wrap that negative in parentheses so the square stays positive: $(-3)^2 + 4 = 9 + 4 = 13$.
- Here you know the output and want the input. Set $2x + 7 = 19$, peel off 7, divide by 2.
- Slide 8 into the x spot: $5 - 8$ dips below zero to -3 .
- Swap in 4 everywhere: $4^2 - 2(4)$ is $16 - 8$, which leaves 8.
- With $t = 0$, the $6t$ piece vanishes completely, so only the starting 12 remains.
- The input is a whole expression now. Put $n+2$ in: $4(n+2) - 1 = 4n + 8 - 1 = 4n + 7$.
- You're told $x = 2$ gives 9, so $9 = 2a + 1$. That makes $2a = 8$, and $a = 4$.
- Send 12 through: $12/3$ is 4, then add 5 to reach 9.
- Square first, then multiply: $(-2)^2$ is 4, doubled is 8, plus 1 gives 9.
- w counts washes, so put in 6: $8(6) + 12$ adds up to a \$60 bill.
- The input is days, so $H(10)$ asks the height at day 10: $15 + 2(10) = 35$.



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