Function Notation and Evaluating Functions

Algebra 1 •Section 4.2

Name: _____	Date: _____	Score: _____ / 12

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 $f(5)$.

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

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

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

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

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

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

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

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

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

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Word Problems

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

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

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Answer Keys

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

Step-by-Step Explanations

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

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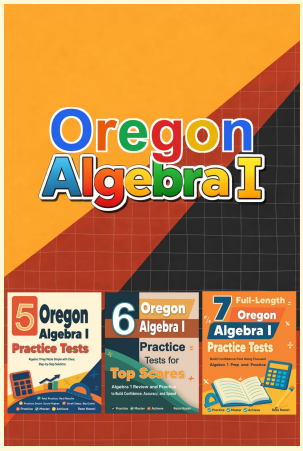

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