NAME _____ DATE _____ PERIOD _____

1-6 Study Guide and Intervention

Algebra: Variables and Expressions

To evaluate an algebraic expression you replace each variable with its numerical value, then use the order of operations to simplify.

Example 1 **Evaluate $6x - 7$ if $x = 8$.**

$6x - 7 = 6(8) - 7$ Replace x with 8.
$= 48 - 7$ Use the order of operations.
$= 41$ Subtract 7 from 48.

Example 2 **Evaluate $5m - 3n$ if $m = 6$ and $n = 5$.**

$5m - 3n = 5(6) - 3(5)$ Replace m with 6 and n with 5.
$= 30 - 15$ Use the order of operations.
$= 15$ Subtract 15 from 30.

Example 3 **Evaluate $\frac{ab}{3}$ if $a = 7$ and $b = 6$.**

$\frac{ab}{3} = \frac{(7)(6)}{3}$ Replace a with 7 and b with 6.
$= \frac{42}{3}$ The fraction bar is like a grouping symbol.
$= 14$ Divide.

Example 4 **Evaluate $x^3 + 4$ if $x = 3$.**

$x^3 + 4 = 3^3 + 4$ Replace x with 3.
$= 27 + 4$ Use the order of operations.
$= 31$ Add 27 and 4.

Exercises

Evaluate each expression if $a = 4$, $b = 2$, and $c = 7$.

1. $3ac$ **84**
2. $5b^3$ **40**
3. abc **56**
4. $5 + 6c$ **47**
5. $\frac{ab}{8}$ **1**
6. $2a - 3b$ **2**
7. $\frac{b^4}{4}$ **4**
8. $c - a$ **3**
9. $20 - bc$ **6**
10. $2bc$ **28**
11. $ac - 3b$ **22**
12. $6a^2$ **96**
13. $7c$ **49**
14. $6a - b$ **22**
15. $ab - c$ **1**