

**Evaluate each expression:**

1.  $3(5 - 2)^2$

2.  $18 - 3(4) + 1$

3.  $2 \cdot 3^2$

4.  $(2 \cdot 3)^2$

5.  $12 \div 3 \cdot 5$

6.  $35 - (1 + 2)^3$

### Radicals

A *radical* is often called a “square root,” and is the opposite of squaring a number.

$3^2 = \underline{\hspace{2cm}}$

$\sqrt{9} = \underline{\hspace{2cm}}$

**Evaluate each expression:**

1.  $\sqrt{4}$

2.  $\sqrt{25}$

3.  $\sqrt{1}$

4.  $\sqrt{144}$

A *variable* is a letter or other symbol used in place of a number in an expression or equation. We call it a variable because its value can change, or vary.

## Evaluating Expressions with Variables

In order to evaluate expressions that have variables:

- Substitute (plug in) numbers for the variables. Use parentheses!
- Simplify the expression. We always remember to use the order of operations.

**Evaluate each expression if  $a = 2$ ,  $b = 3$ , and  $c = 4$ :**

1.  $5c$

2.  $4a + 2c$

3.  $(c - a)^2$

4.  $5b^2$

5.  $b(c - a)$

6.  $(2b)^2$

7. Multiple Choice: Evaluate  $4c$  if  $c = 6$

(a) 144

(b) 24

(c) 72

(d) 26

8. Multiple Choice: Evaluate  $5x$  if  $x = 12$

(a) 7 (b) 512

(c) 60 (d) 17

9. Multiple Choice: Determine the value of  $16 - 2d$  if  $d = 2$

(a) 0 (b)  $-6$

(c) 28 (d) 12

10. Multiple Choice: Determine the value of  $4x^2$  if  $x = 3$

(a) 36 (b) 144

(c) 18 (d) 24

11. Multiple Choice: What is the value of the expression  $4x^2 + 5x$  when  $x = 3$ ?

(a) 123 (b) 51

(c) 39 (d) 96

12. Multiple Choice: What is the value of the expression  $4x^2 - 5x$  when  $x = 3$ ?

(a) 21 (b) 9

(c) 29 (d) 51

13. Evaluate the expression  $3x^2y$  if  $x = 2$  and  $y = 3$ .

14. Evaluate the expression  $ab^2$  if  $a = 3$  and  $b = 2$ .