1.1 Evaluate Expressions

TEKS a.1, a.2

Before You used whole numbers, fractions, and decimals.

Now You will evaluate algebraic expressions and use exponents.

Why So you can calculate sports statistics, as in Ex. 50.

Key Vocabulary
- **variable**
- **algebraic expression**
- **power**
- **base**
- **exponent**

A **variable** is a letter used to represent one or more numbers. The numbers are the values of the variable. An **algebraic expression**, or *variable expression*, consists of numbers, variables, and operations.

Algebraic expression	Meaning	Operation
$5(n)$ $5 \cdot n$ $5n$	5 times n	Multiplication
$\frac{14}{y}$ $14 \div y$	14 divided by y	Division
$6 + c$	6 plus c	Addition
$8 - x$	8 minus x	Subtraction

To **evaluate an algebraic expression**, substitute a number for the variable, perform the operation(s), and simplify the result, if necessary. The resulting number is the value of the expression.

EXAMPLE 1 Evaluate algebraic expressions

Evaluate the expression when $n = 3$.

AVOID ERRORS
Use the multiplication symbol $\cdot$ instead of $\times$ in algebraic expressions to avoid confusing $\times$ with the variable x.

a. $13 \cdot n = 13 \cdot 3$ Substitute 3 for n.

$= 39$ Multiply.

b. $\frac{9}{n} = \frac{9}{3}$ Substitute 3 for n.

$= 3$ Divide.

c. $n - 1 = 3 - 1$ Substitute 3 for n.

$= 2$ Subtract.

d. $n + 8 = 3 + 8$ Substitute 3 for n.

$= 11$ Add.

GUIDED PRACTICE for Example 1

Evaluate the expression when $y = 2$.

1. $6y$ **2.** $\frac{8}{y}$ **3.** $y + 4$ **4.** $11 - y$