1.2 Apply Order of Operations
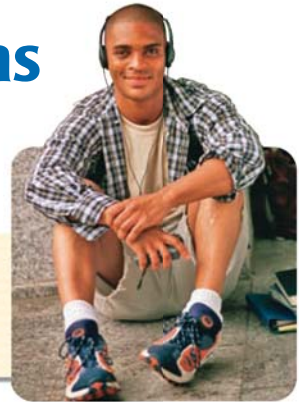
Before	You evaluated algebraic expressions and used exponents.
Now	You will use the order of operations to evaluate expressions.
Why?	So you can determine online music costs, as in Ex. 35.

Key Vocabulary
• order of operations

Mathematicians have established an **order of operations** to evaluate an expression involving more than one operation.

KEY CONCEPT   *For Your Notebook*

Order of Operations

STEP 1 **Evaluate** expressions inside grouping symbols.

STEP 2 **Evaluate** powers.

STEP 3 **Multiply** and **divide** from left to right.

STEP 4 **Add** and **subtract** from left to right.

EXAMPLE 1 Evaluate expressions

Evaluate the expression $27 \div 3^2 \times 2 - 3$.

STEP 1 There are no grouping symbols, so go to Step 2.

STEP 2 **Evaluate** powers.

$27 \div 3^2 \times 2 - 3 = 27 \div 9 \times 2 - 3$ **Evaluate power.**

STEP 3 **Multiply** and **divide** from left to right.

$27 \div 9 \times 2 - 3 = 3 \times 2 - 3$ **Divide.**

$3 \times 2 - 3 = 6 - 3$ **Multiply.**

STEP 4 **Add** and **subtract** from left to right.

$6 - 3 = 3$ **Subtract.**

▶ The value of the expression $27 \div 3^2 \times 2 - 3$ is 3.

✓ **GUIDED PRACTICE** for Example 1

Evaluate the expression.

1. $20 - 4^2$ **2.** $2 \cdot 3^2 + 4$ **3.** $32 \div 2^3 + 6$ **4.** $15 + 6^2 - 4$