

# Simplifying Expressions

**Goal:** Simplify algebraic expressions.

## Vocabulary

**Terms:** The parts of an expression that are added together

**Coefficient:** The number part of a term that includes a variable

**Like terms:** Terms that have identical variable parts raised to the same power

**Constant term:** A term that has a number but no variable

## EXAMPLE 1 Identifying Parts of an Expression

Identify the terms, coefficients, like terms, and constant terms of the expression  $6x - 4 + 3x + 8$ .

### Solution

Write the expression as a sum:  $6x + (-4) + 3x + 8$ .

Terms:  $6x$ ,  $-4$ ,  $3x$ ,  $8$

Like terms:  $6x$  and  $3x$ ,  $-4$  and  $8$

Coefficients:  $6$  and  $3$

Constant terms:  $-4$ ,  $8$

## Guided Practice Complete the following exercise.

- Identify the terms, coefficients, like terms, and constant terms of the expression  $2x + 4 - 1 + 9x$ .

**EXAMPLE 2 Combining Like Terms**

Think:  
Which are  
like terms?

$$\begin{aligned} \text{a. } 4 + 6a + 5a &= 4 + (6 + 5)a && \text{Distributive property} \\ &= 4 + 11a && \text{Add inside grouping symbols.} \end{aligned}$$

$$\begin{aligned} \text{b. } -10x + 3x + 8y &= (-10 + 3)x + 8y && \text{Distributive property} \\ &= -7x + 8y && \text{Add inside grouping symbols.} \end{aligned}$$

**EXAMPLE 3 Simplifying Expressions**

$$\begin{aligned} \text{a. } 2(9 + n) + 3n &= 18 + 2n + 3n && \text{Distributive property} \\ &= 18 + 5n && \text{Combine like terms.} \end{aligned}$$

$$\begin{aligned} \text{b. } -7(3y - 1) + y - 2 &= -21y + 7 + y - 2 && \text{Distributive property} \\ &= -20y + 5 && \text{Combine like terms.} \end{aligned}$$

**Guided Practice** Simplify the expression.

2.  $3x - 11x$

3.  $-5a + 8b - 1 - 4a$

4.  $-3z + 5(z + 5)$

5.  $6(t - 7) - t + 12$

**Homework**