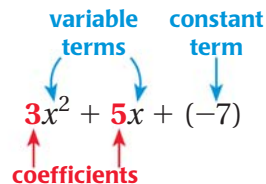


Terms and Coefficients

In an expression that can be written as a sum, the parts added together are called **terms**.

A term that has a variable part is called a **variable term**. A term that has no variable part is called a **constant term**.

When a term is a product of a number and a power of a variable, the number is called the **coefficient** of the power.



SIMPLIFYING An expression is simplified if it contains no grouping symbols and all *like terms* are combined. **Like terms** are terms that have the same variable parts. (Constant terms are also considered like terms.) The distributive property allows you to *combine like terms* by adding coefficients.

EXAMPLE 4 Simplify by combining like terms

a. $8x + 3x = (8 + 3)x$ **Distributive property**
 $= 11x$ **Add coefficients.**

b. $5p^2 + p - 2p^2 = (5p^2 - 2p^2) + p$ **Group like terms.**
 $= 3p^2 + p$ **Combine like terms.**

c. $3(y + 2) - 4(y - 7) = 3y + 6 - 4y + 28$ **Distributive property**
 $= (3y - 4y) + (6 + 28)$ **Group like terms.**
 $= -y + 34$ **Combine like terms.**

d. $2x - 3y - 9x + y = (2x - 9x) + (-3y + y)$ **Group like terms.**
 $= -7x - 2y$ **Combine like terms.**

AVOID ERRORS

The terms $3p^2$ and p are not like terms. They use the same variable but different exponents, so the terms cannot be combined.

IDENTITIES Two algebraic expressions are **equivalent expressions** if they have the same value for all values of their variable(s). For instance, in part (a) of Example 4, the expressions $8x + 3x$ and $11x$ are equivalent. A statement such as $8x + 3x = 11x$ that equates two equivalent expressions is called an **identity**.

**GUIDED PRACTICE** for Example 4

8. Identify the terms, coefficients, like terms, and constant terms in the expression $2 + 5x - 6x^2 + 7x - 3$. Then simplify the expression.

Simplify the expression.

9. $15m - 9m$

10. $2n - 1 + 6n + 5$

11. $3p^3 + 5p^2 - p^3$

12. $2q^2 + q - 7q - 5q^2$

13. $8(x - 3) - 2(x + 6)$

14. $-4y - x + 10x + y$