



Reteaching

2.7 Multiplying and Dividing Expressions

◆ **Skill A** Multiplying expressions

Recall In the expression x^3 , x is called the base, and 3 is called the exponent. The exponent tells how many times the base appears as a factor.
For example, $x^3 = (x)(x)(x)$, $x^1 = x$, and $x^0 = 1$.

◆ **Example 1**

Simplify the expression $3x \cdot (-5x)$.

◆ **Solution**

$$\begin{aligned} 3x \cdot (-5x) &= (3x)(-5x) \\ &= (3)(-5)(x)(x) \\ &= -15x^2 \end{aligned}$$

Thus, $3x \cdot (-5x) = -15x^2$.

◆ **Example 2**

Simplify the expression $4x(2x - 3)$.

◆ **Solution**

Use the Distributive Property.

$$\begin{aligned} 4x(2x - 3) &= (4x)(2x) - (4x)(3) \\ &= 8x^2 - 12x \end{aligned}$$

Thus, $4x(2x - 3) = 8x^2 - 12x$.

◆ **Example 3**

Simplify the expression $8x^2 - 3x(x + 1)$.

◆ **Solution**

Use the definition of subtraction and then use the Distributive Property.

$$\begin{aligned} 8x^2 - 3x(x + 1) &= 8x^2 + (-3x)(x + 1) \\ &= 8x^2 + (-3x)(x) + (-3x)(1) \\ &= 8x^2 + (-3x^2) + (-3x) \\ &= 5x^2 - 3x \end{aligned}$$

Thus, $8x^2 - 3x(x + 1) = 5x^2 - 3x$.

Simplify the following expressions. Use the Distributive Property if needed.

1. $(-2x)(11x)$ _____

2. $5(4x^2) - 2(3x^2)$ _____

3. $-2(x^2 + x)$ _____

4. $(2x - 3x^2)6$ _____

5. $x(x + 4)$ _____

6. $6 \cdot 3x(x - 8)$ _____

7. $(2x + 10)(5x)$ _____

8. $-7x(5 - x)$ _____

9. $6x^2 - x(8x + 2)$ _____

10. $-3x^2 - 4x(2 - x)$ _____