Additional Examples — Lesson 9-2

2 EXAMPLE Find the GCF of $2x^4 + 10x^2 - 6x$.

List the prime factors of each term. Identify the factors common to all terms.

$2x^4 = 2 \cdot x \cdot x \cdot x \cdot x$

$10x^2 = 2 \cdot 5 \cdot x \cdot x$

$6x = 2 \cdot 3 \cdot x$

The GCF is $2 \cdot x$, or $2x$.

3 EXAMPLE Factor $4x^3 + 12x^2 - 16x$.

Step 1: Find the GCF.

$4x^3 = 2 \cdot 2 \cdot x \cdot x \cdot x$

$12x^2 = 2 \cdot 2 \cdot 3 \cdot x \cdot x$

$16x = 2 \cdot 2 \cdot 2 \cdot 2 \cdot x$

The GCF is $2 \cdot 2 \cdot x$, or $4x$.

Step 2: Factor out the GCF.

$4x^3 + 12x^2 - 16x$

$= 4x(x^2) + 4x(3x) + 4x(-4)$

$= 4x(x^2 + 3x - 4)$

Additional Examples — Lesson 9-2

1 EXAMPLE Simplify $-2g^2(3g^3 + 6g - 5)$.

$-2g^2(3g^3 + 6g - 5)$

$= -2g^2(3g^3) - 2g^2(6g) - 2g^2(-5)$ Use the Distributive Property.

$= -6g^{2+3} - 12g^{2+1} + 10g^2$ Multiply the coefficients and add the exponents of powers with the same base.

$= -6g^5 - 12g^3 + 10g^2$ Simplify.