9-2 Multiplying and Factoring

1 EXAMPLE Multiplying a Monomial and a Trinomial

Simplify $-4y^2(5y^4 - 3y^2 + 2)$.

1 Simplify each product.

a. $4b(5b^2 + b + 6)$ **b.** $-7h(3h^2 - 8h - 1)$ **c.** $2x(x^2 - 6x + 5)$

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2 EXAMPLE Finding the Greatest Common Factor

Find the GCF of the terms of $4x^3 + 12x^2 - 8x$.

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

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

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

$8x = 2 \cdot 2 \cdot 2 \cdot x$

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

2 Find the GCF of the terms of each polynomial.

a. $5v^5 + 10v^3$ **b.** $3t^2 - 18$ **c.** $4b^3 - 2b^2 - 6b$

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3 EXAMPLE Factoring Out a Monomial

Factor $3x^3 - 12x^2 + 15x$.

3 Use the GCF to factor each polynomial.

a. $8x^2 - 12x$ **b.** $5d^3 + 10d$ **c.** $6m^3 - 12m^2 - 24m$

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