

Multiply a Polynomial by a Monomial

7-6

- use the distributive property

Example 1:

$$5a^2(-4a^2 + 2a - 7)$$

$$(5a^2)(-4a^2) + (5a^2)(2a) + (5a^2)(-7)$$

$$-20a^4 + 10a^3 - 35a^2$$

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Example 2:

$$3(5x^2 + 2x - 4) - x(7x^2 + 2x - 3)$$

$$(3)(5x^2) + (3)(2x) + (3)(-4) - (x)(7x^2) - (x)(2x) - (x)(-3)$$

$$15x^2 + 6x - 12 - 7x^3 - 2x^2 + 3x$$

$$-7x^3 + 15x^2 - 2x^2 + 6x + 3x - 12$$

$$-7x^3 + 13x^2 + 9x - 12$$

Example 3:

$$2(7x - 24) = 5(x + 3) + 9$$

$$(2)(7x) + (2)(-24) = (5)(x) + (5)(3) + 9$$

$$14x - 48 = 5x + 15 + 9$$

$$14x - 48 = 5x + 24$$

$$\begin{array}{r} 14x - 48 = 5x + 24 \\ -5x \quad -5x \\ \hline 9x - 48 = 24 \\ +48 \quad +48 \\ \hline 9x = 72 \end{array}$$

$$9x = 72$$

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$$\begin{array}{r} 9x = 72 \\ \hline 9 \quad 9 \\ \hline \end{array}$$

$$x = 8$$