

Algebra 1

Chapter 8

Section 8-2

Review: Distribution

$$4(5x - 3)$$

$$20x - 12$$

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

$$14x^3 + 28$$

$$-8(x^2 - 2)$$

$$-8x^2 + 16$$

Multiplying a Monomial and a Binomial

$$7x(-3x + 3)$$

$$-21x^2 + 21x$$

$$11(5x^5 - 4)$$

$$55x^5 - 44$$

$$x(x^2 + 1)$$

$$x^3 + x$$

Multiplying a Monomial and a Trinomial

$$8x^5(x^2 - 2x + 7)$$


$$8x^7 - 16x^6 + 56x^5$$

$$-5x^2(9x^4 - x^3 - 2x)$$

$$-45x^6 + 5x^5 + 10x^3$$

Concept

Factoring can be thought of as the *opposite* of distribution. You can "undistribute" any common factor out of the terms of a polynomial.

EXAMPLE:  $3x^2 + 9x - 12 = 3(x^2 + 3x - 4)$

Greatest Common Factors

What is in common?

$$24x^2y, 12xy, -8xy^3$$

$$4xy$$

Factor. Check by multiplying.

$$8x^2 + 24$$
$$\underline{8(x^2 + 3)}$$
$$8x^2 + 24 \checkmark$$

$$-5x - 35$$
$$\underline{-5(x + 7)}$$
$$-5x - 35 \checkmark$$

Factor out the greatest common factor.

$$9xy + 30xz$$
$$3x(3y + 10z)$$

$$6k^3 + 12k^5$$
$$\underline{6k^3}(1 + 2k^2)$$

Factor out the greatest common factor.

$$7a^2bc - 49b^5$$

$$7b(a^2c - 7b^4)$$

$$-45ws + 36s$$

$$9s(-5w + 4)$$

Factor out the greatest common factor.

$$8y^5 - 6y^2 + 12y$$

$$2y(4y^4 - 3y + 6)$$

$$12a^3 - 7a^2 - 5a$$

$$a(12a^2 - 7a - 5)$$

Factor out the greatest common factor.

$$48y^2 - 16y + 36$$

$$4(12y^2 - 4y + 9)$$

$$12x^3y - 24x^2y - 9x^2y^2$$

$$3x^2y(4x - 8 - 3y)$$