

## 7.3 MULTIPLYING POLYNOMIALS

### OBJECTIVES:

- 1) Multiply conjugate binomials
- 2) Multiply polynomials with more than two terms
- 3) Factor quadratic trinomials/difference of squares.

- 1) Find the product.

$$(3x - 5)(3x + 5)$$

$$9x^2 - 25$$

### PRODUCT OF CONJUGATE BINOMIALS

$$(a + b)(a - b)$$

The result is called a "Difference of Squares"

- 2)  $(3x - 5)^2$  is NOT  $(3x)^2 - 5^2$

$$9x^2 - 30x + 25$$

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

$$x^5 + 4x^4 - 3x^3 - 2x^4 - 8x^3 + 6x^2 + 5x^3 + 20x^2 - 15x - 7x^2 - 28x + 21$$

$$x^5 + 2x^4 - 6x^3 + 19x^2 - 43x + 21$$

$$4) (x + 5)(x - 1)(x + 2)$$

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

$$x^3 + 2x^2 + 4x^2 + 8x - 5x - 10$$

$$x^3 + 6x^2 + 3x - 10$$

$$5) (x - 5)^3$$

$$(x^2 - 10x + 25)(x - 5)$$

$$x^3 - 5x^2 - 10x^2 + 50x + 25x - 125$$

$$x^3 - 15x^2 + 75x - 125$$

## FACTORING REVIEW

Factor the following.

6)  $3x^2 - 21x + 36$

$$3(x^2 - 7x + 12)$$

$$3(x-4)(x-3)$$

7)  $3x^2 - 5x - 12$

$$3x^2 - 9x + 4x - 12$$

$$3x(x-3) + 4(x-3)$$

$$(3x+4)(x-3)$$

8)  $x^2 - 81$

$$(x+9)(x-9)$$

9)  $100 - x^2y^4$

$$(10 - xy^2)(10 + xy^2)$$