

## 7-3 Multiplying Polynomials

To multiply polynomials, use the distributive property.

### MONOMIAL BY A POLYNOMIAL EXAMPLES:

\*Don't forget your exponent properties!  $x^3 \cdot x^4 = x^7$

1.  $3x(4x + 10)$   
 $12x^2 + 30x$

2.  $2x^3(x^2 - 3x - 4)$   
 $2x^3 - 6x^2 - 8x$

### \*\*BINOMIAL BY A BINOMIAL\*\*

To multiply a binomial by another binomial, we use a process called

**F O I L**  
FIRST OUTER INNER LAST

$$(2x + 3)(4x - 5)$$
$$(2x)(4x) + (2x)(-5) + (3)(4x) + (3)(-5)$$
$$8x^2 - 10x + 12x - 15$$

$$8x^2 + 2x - 15$$

## EXAMPLES:

1.  $(x - 6)(x + 8)$

$$x^2 + 8x - 6x - 48$$

$$\boxed{x^2 + 2x - 48}$$

2.  $(4x + 3)(5x + 2)$

$$20x^2 + 8x + 15x + 6$$

$$\boxed{20x^2 + 23x + 6}$$

3.  $(3b - 8)(7b - 1)$

$$21b^2 - 3b - 56b + 8$$

$$21b^2 - 59b + 8$$

4.  $(x + 7)(x + 3)$

$$x^2 + 3x + 7x + 21$$

$$x^2 + 10x + 21$$

5.  $(7n + 2)(3n + 7)$

$$21n^2 + 49n + 6n + 14$$

$$21n^2 + 55n + 14$$

6.  $(n - 6)(n - 5)$

$$n^2 - 5n - 6n + 30$$

$$n^2 - 11n + 30$$