

## Section 6.3: FACTORING TRINOMIALS WHOSE LEADING COEFFICIENT IS NOT 1

When you are done with your homework you should be able to...

$\pi$  Factor trinomials by trial and error

$\pi$  Factor trinomials by grouping

WARM-UP:

Factor:

a.  $x^2y - xy^2$

c.  $2x^3 - 6x^2 + 4x$

b.  $x^2 - 14x - 51$

d.  $z^2 + z - 72$

### A STRATEGY FOR FACTORING $ax^2 + bx + c$ : USING TRIAL AND ERROR

Assume, for the moment, that there is no \_\_\_\_\_  
factor other than \_\_\_\_\_.

1. \_\_\_\_\_ two First \_\_\_\_\_ whose \_\_\_\_\_ is \_\_\_\_\_.

2. \_\_\_\_\_ two Last \_\_\_\_\_ whose \_\_\_\_\_ is \_\_\_\_\_.

3. By \_\_\_\_\_ and \_\_\_\_\_, perform steps 1 and 2 until the  
\_\_\_\_\_ of the Outside \_\_\_\_\_ and the Inside  
\_\_\_\_\_ is \_\_\_\_\_.

If \_\_\_\_\_ such \_\_\_\_\_ exist, the polynomial is \_\_\_\_\_.

Example 1: Factor using trial and error.

a.  $5x^2 - 14x + 8$

b.  $6x^2 + 19x - 7$

c.  $3x^2 - 13xy + 4y^2$

d.  $9z^2 + 3z + 2$

**A STRATEGY FOR FACTORING  $ax^2 + bx + c$  : USING GROUPING**

4. Multiply the leading coefficient and the constant, \_\_\_\_\_.

5. Find the \_\_\_\_\_ of \_\_\_\_\_ whose \_\_\_\_\_ is \_\_\_\_\_.

6. Rewrite the \_\_\_\_\_ term, \_\_\_\_\_, as a \_\_\_\_\_ or a \_\_\_\_\_ using the factors from step 2.

7. \_\_\_\_\_ by \_\_\_\_\_.

Example 1: Factor using grouping.

a.  $3x^2 - x - 10$

b.  $8x^2 - 10x + 3$

c.  $9y^2 + 5y - 4$

d.  $12x^2 + 7xy - 12y^2$

Example 4: Factor completely

a.  $4x^2 - 18x - 10$

c.  $24y^4 + 10y^3 - 4y^2$

b.  $3x^3 + 14x^2 + 8x$

d.  $6(y+1)x^2 + 33(y+1)x + 15(y+1)$