

**Warm - Up**  
**2/25**

**Factor completely**

$$36x^3 - 9x^2$$

### **Homework due tomorrow:**

- **p. 85 (6 - 10)**
- **p. 86 (11 - 20)**
- **p. 87 (21 - 30)**

# Factoring by Grouping

***Procedure – Factoring Polynomials***

1. Factor any G.C.F.
2. Choose the appropriate procedure.
  - a. Binomial – Difference of two squares.
  - b. Trinomial – Try special forms for a few seconds and if you can't find a factored form shift to the AC method.
  - c. Four terms – Factor by grouping.
3. Return to step 1 with any factor that isn't prime.

**Factor out the binomial GCF**

$$k(k-4) - 2(k-4)$$



**Factor out the binomial GCF**

$$2t(2t - 5) - 3(2t - 5)$$



**Factor out the binomial GCF**

$$m(3m - 7) - (3m - 7)$$



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Factor out the binomial GCF

$$\begin{array}{c} x(5x - 7) + (5x - 7) \\ \underbrace{\hspace{1.5cm}} \quad \underbrace{\hspace{1.5cm}} \\ (5x - 7)(x + 1) \end{array}$$



### Factor using grouping

4 term  
polynomial

$$\begin{array}{l} x^2 = \cancel{x} \cdot x \quad \text{GCF} = x \\ x = \cancel{x} \\ \hline 2x = 2 \cdot \cancel{x} \\ 2 = 2 \quad \text{GCF} \end{array}$$

$$\begin{array}{l} (x^2 + x) + (2x + 2) \\ \underbrace{\hspace{1.5cm}} \quad \underbrace{\hspace{1.5cm}} \\ x(x+1) + 2(x+1) \end{array}$$

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

$$x^2 + 2x + x + 2$$

$$\underline{x^2 + 3x + 2}$$



### Factor using grouping

$$\underbrace{(2p^2 - 4p)}_{2p(p-2)} + \underbrace{(3p - 6)}_{3(p-2)}$$

$$2p(p-2) + 3(p-2)$$
$$(p-2)(2p+3)$$

**Homework (due Thu, Feb. 28th)**

p. 87 (31 - 36)

**p. 88 (37 - 45)**