

Factoring Technique - Polynomials - As of End of Ch. 9

1. Pull out GCF, if possible

2. Look for a pattern: $(a-b)(a+b) = a^2 - b^2$

$$(a+b)^2 = a^2 + 2ab + b^2$$

$$(a-b)^2 = a^2 - 2ab + b^2$$

3. $X^2 + bx + c$ • WRITE FACTORS AS

$$\begin{array}{c} \uparrow \quad \uparrow \\ 2 \quad \left. \begin{array}{l} \text{sum } b \\ \text{prod } c \end{array} \right\} \text{Numbers} \\ \wedge \quad \wedge \\ \quad \quad \end{array}$$

$$\begin{array}{c} (X + _)(X + _) \\ \uparrow \quad \quad \uparrow \\ \text{FIRST} \quad \text{SECOND} \\ \text{NUMBER} \quad \text{NUMBER} \end{array}$$

4. $ax^2 + bx + c$

$$\begin{array}{c} \uparrow \quad \quad \uparrow \quad \quad \uparrow \\ 2 \quad \left. \begin{array}{l} \text{sum} = b \\ \text{product} = ac \end{array} \right\} \text{Numbers} \\ \wedge \quad \wedge \\ \quad \quad \end{array}$$

• THEN SPLIT bx

$$\begin{array}{c} (ax^2 + \frac{_}{_}x) + (\frac{_}{_}x + c) \\ \uparrow \quad \quad \uparrow \\ \text{FIRST} \quad \text{SECOND} \\ \text{NUMBER} \quad \text{NUMBER} \end{array}$$

• THEN FACTOR BY GROUPING

5. If polynomial HAS 4 or more terms, try factoring by grouping.