

CHOOSING THE RIGHT FACTORING METHOD

1. GCF
2. Grouping
3. M-A Chart (for Trinomials)
4. DOTS (Special Products)

CHOOSING THE RIGHT FACTORING METHOD

$$-3x^2 + 48$$

$$2x^2 - 9x - 18$$

$$-4x^2 - 8 + 3x^3 + 6x$$

Where do I start?

Step 1: Put your polynomial in DESCENDING order

$$\checkmark -3x^2 + 48$$

$$\checkmark 2x^2 - 9x - 18$$

$$-4x^2 - 8 + 3x^3 + 6x$$

$$\checkmark 3x^3 - 4x^2 + 6x - 8$$

Step 2: Look for a GCF.

(This includes NEGATIVE LEADING COEFFICIENTS!)

$$\checkmark \begin{array}{l} \boxed{-3x^2 + 48} \\ \checkmark 2x^2 - 9x - 18 \\ \checkmark 3x^3 - 4x^2 + 6x - 8 \end{array}$$

$$\begin{array}{l} -3 \overline{) x^2 - 16} \\ -3(x^2 - 16) \end{array}$$

Step 3: Look at how many terms are in the remaining expression

IF 2 TERMS, CONSIDER DOTS...

$$\textcircled{-3}(x^2 - 16)$$

$$a^2 = x^2 \quad b^2 = 16$$

$$a = x \quad b = 4$$

$$\boxed{-3(x+4)(x-4)}$$

Step 3: Look at how many terms are in the remaining expression

IF 3 TERMS, CONSIDER AN M-A CHART...

$$2x^2 - 9x - 18 \quad \begin{array}{r} \hline 11 = -36 - 9 \\ \hline \end{array}$$

$$\begin{array}{|l} 2x^2 - 12x + 3x - 18 \\ \hline \end{array} \quad \begin{array}{|l} -12 \quad 3 \\ \hline \end{array}$$

$$2x \quad \begin{array}{|l} x - 6 \\ \hline \end{array} \quad 3 \quad \begin{array}{|l} x - 6 \\ \hline \end{array}$$

$$\boxed{(2x+3)(x-6)}$$

Step 3: Look at how many terms are in the remaining expression

IF 4 TERMS, CONSIDER GROUPING...

DOTS?
no.

$$\begin{array}{l} \overline{3x^3 - 4x^2} + \overline{6x - 8} \\ x^2 \overline{3x - 4} \quad 2 \overline{3x - 4} \\ \hline \underline{\underline{(x^2 + 2)(3x - 4)}} \end{array}$$

IF NONE OF YOUR METHODS WORK...

STOP!!

Your polynomial is already factored.