

Simple Trinomials

1) $x^2 - 10x - 24$

$(x+2)(x-12)$

$$\begin{array}{r} -x - = -24 \\ - + - = -10 \end{array}$$

3) $2a^2 - 2a - 12$

$2(a^2 - a - 6)$

$2(a-3)(a+2)$

2) $m^2 - 13m + 30$

$(m-3)(m-10)$

4) $3w^2 + 15w - 42$

$3(w^2 + 5w - 14)$

$3(w+7)(w-2)$

Factoring By Grouping:

ex $6awx + 2ax - 3wy - y$

$2ax(3w+1) - y(3w+1)$

$(3w+1)(2ax-y)$

$2ax \odot -y \odot$
 $\odot (2ax - y)$

$$2/ 5xw + 2y - 2xy - 5w$$

$$\underline{2y - 2xy} + 5xw - 5w$$

$$\underline{2y(1-x)} - \underline{5w(x+1)}$$

Must
Re-order
terms

$$| (1-x)(2y-5w) \Rightarrow (5w-2y)(x-1)$$

$$| -1(x-1)(-1)(-2y+5w)$$

Hard Trinomials

$$ax^2 + bx + c$$

If $a \neq 1$

| Will use decomposition...

$$\underline{\text{ex.}} \quad 8x^2 - 10x - 3 \quad \begin{matrix} (-2) \\ -12 \times 2 = -24 \end{matrix}$$

$$8x^2 - 12x + 2x - 3 \quad \begin{matrix} -12 + 2 = -10 \end{matrix}$$

$$4x(2x-3) + 1(2x-3)$$

$$(2x-3)(4x+1)$$

$$8x^2 - 10x - 3$$

$$\left(\frac{8x-12}{4} \frac{2}{4}\right) \left(\frac{8x+2}{2} \frac{2}{2}\right)$$

$$(2x-3)(4x+1)$$

Option B

$$5x^2 + 2x - 7$$

$$\left(\frac{5x+7}{5} \frac{5}{5}\right) \left(\frac{5x-5}{5} \frac{5}{5}\right)$$

$$(5x+7)(x-1)$$

Be CAREFUL!!

$$1 \quad 6x^2 + 14x - 12 \leftarrow \text{Must Identify Common // Factor ..}$$

$$\left(\frac{6x+18}{6} \frac{2}{6}\right) \left(\frac{6x-4}{6} \frac{2}{6}\right)$$

$$2(x+3)(3x-2)$$

$$2/ \overbrace{3x^2 - 20x - 7}^{-21}$$

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

$$3x(x-7) + 1(x-7)$$

$$(x-7)(3x+1)$$

$$3/ \overbrace{7x^2 - 12x - 4}^{-28}$$

$$7x^2 - 14x + 2x - 4$$

$$7x(x-2) + 2(x-2)$$

$$(x-2)(7x+2)$$

$$4) 15x^2 - 42x + 24$$

$$3(5x^2 - 14x + 8)$$

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

$$3(5x(x-2) - 4(x-2))$$

$$3(x-2)(5x-4)$$

$$(3x-6)(5x-4)$$

$$3(x-2)(5x-4)$$