

6.2

Friday, August 24, 2012
10:47 AM

Trinomial 3 terms

(ex) $x^2 + 5x - 2$

General Trinomial
 $x^2 \pm bx \pm c$

Trinomials factor as $(x \pm \text{---})(x \pm \text{---})$

Rule of Signs

$$x^2 \pm bx \pm c$$

if this sign is a -
 then its $(x+)(x-)$

if this is a + then
 signs inside $(x \text{)}(x \text{)}$ are
 the same and they are
 whatever this sign is

(ex) $x^2 + 5x - 2 = (x+ \text{)}(x- \text{)}$
 $x^2 - 5x - 2 = (x+ \text{)}(x- \text{)}$
 $x^2 + 5x + 2 = (x+ \text{)}(x+ \text{)}$
 $x^2 - 5x + 2 = (x- \text{)}(x- \text{)}$

Factoring $x^2 \pm bx \pm c$

1. write $(x \quad)(x \quad)$
2. choose signs
3. find all numbers that give last * last
4. try all until one works.

factor

ex. $x^2 + 7x + 12 = \boxed{(x+3)(x+4)}$

$\begin{matrix} F+F & & OI & & L+L \\ & \uparrow & & & \end{matrix}$
 $\begin{matrix} 1*12 \\ 2*6 \\ 3*4 \end{matrix}$

try them

~~$(x+1)(x+12) = x^2 + 12x + 1x + 12 = x^2 + 13x + 12$~~

~~$(x+2)(x+6) = x^2 + 6x + 2x + 12 = x^2 + 8x + 12$~~

$(x+3)(x+4) = x^2 + 4x + 3x + 12 = x^2 + 7x + 12$

ex. $x^2 + 5x - 6 = \boxed{(x+6)(x-1)}$

$\begin{matrix} 1*6 \\ 2*3 \end{matrix}$

try

~~$(x+1)(x-6) = x^2 - 6x + 1x - 6 = x^2 - 5x - 6$~~

$(x+6)(x-1) = x^2 - 1x + 6x - 6 = x^2 + 5x - 6$

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

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

6

Factoring $-x^2 \pm bx \pm c$

Need a pre-step: factor out a negative.

ex) $-x^2 - 4x + 12$

$$-(x^2 + 4x - 12)$$

$$-(x + 6)(x - 2)$$

- 1 * 12
- 2 * 6
- 3 * 4

Prime Trinomials

Not all trinomials factor, these are called prime tri.

ex $x^2 + 5x - 7 = \quad \quad \quad)(x - \quad \quad \quad) \quad \quad \quad | \neq 7$

~~$$\dots + 1x - 7 = x^2 - 6x - 7$$~~

~~$$(x+7)(x-1) = x^2 - \overbrace{1x+7x} - 7 = x^2 + 6x - 7$$~~

PRIME Trinomial!

May need to factor out the GCF first

$$\text{(ex.) } 3x^2 + 9x + 6 \leftarrow \begin{array}{l} 1 * 6 \\ 2 * 3 \end{array}$$

$$\textcircled{3}x^2 \quad \textcircled{3}x \quad \textcircled{2} \textcircled{3}$$

C.

$$\frac{3(x+1)(x+2)}{1 * 2}$$

ALWAYS factor out

GCF FIRST