

Notes:

FMPC 10

Factoring Trinomials $ax^2 + bx + c$, where $a = 1$

- Factoring by inspection

Example 1: Factor $x^2 + 7x + 6$

$$\therefore \underline{(x+1)(x+6)}$$

$$\begin{array}{l} \boxed{\times} \\ +6 = \boxed{1 \times 6} \\ -1 \times -6 \\ \boxed{+} \\ +7 = 2 \times 3 \\ -2 \times -3 \end{array}$$

Example 2: Factor $x^2 + 11x + 24$

$$\therefore (x+3)(x+8)$$

$$\begin{array}{l} \boxed{\times} \\ +24 = 1 \times 24 \\ -1 \times -24 \\ \boxed{+} \\ +11 = 2 \times 12 \\ -2 \times -12 \end{array} \quad \begin{array}{l} \boxed{3 \times 8} \\ -3 \times -8 \\ 4 \times 6 \\ -4 \times -6 \end{array}$$

Example 3: Factor $x^2 + x - 12$

$$\therefore (x-3)(x+4)$$

$$\begin{array}{l} \boxed{\times} \\ -12 = 1 \times -12 \\ -1 \times 12 \\ \boxed{+} \\ +1 = 2 \times -6 \\ -2 \times 6 \\ 3 \times -4 \\ \boxed{-3 \times 4} \end{array}$$

Example 4: Factor $x^2 + 3x - 10$ \longrightarrow

$$\therefore (x-2)(x+5)$$

$\boxed{\times}$

-10

=

$$1x-10$$

$$-1x+10$$

$$2x-5$$

$$\boxed{-2x+5}$$

$\boxed{+}$

+3

Example 5: Factor $x^2 - 8x + 12$ \longrightarrow

$$\therefore (x-2)(x-6)$$

$\boxed{\times}$

+12

=

$$1x-12$$

$$-1x-12$$

$$2x-6$$

$$\boxed{-2x-6}$$

$\boxed{+}$

-8

$$3x-4$$

$$-3x-4$$

Example 6: Factor $x^2 - 9x - 36$ \longrightarrow

$$\therefore (x-12)(x+3)$$

$\boxed{\times}$

-36

=

$$-1x-36$$

$$+1x-36$$

$$2x-18$$

$$-2x-18$$

$$\boxed{3x-12}$$

$$-3x+12$$

$$4x-9$$

$$-4x+9$$

$\boxed{+}$

-9

$$6x-6$$