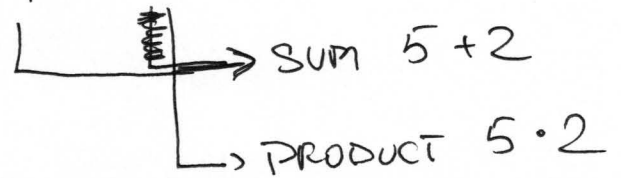
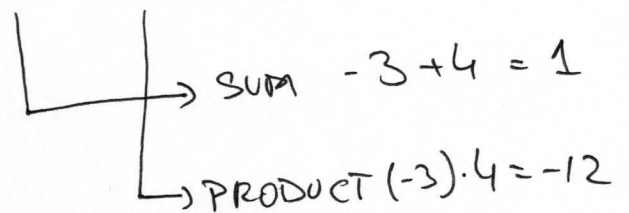


FACTORIZING $x^2 + bx + c$

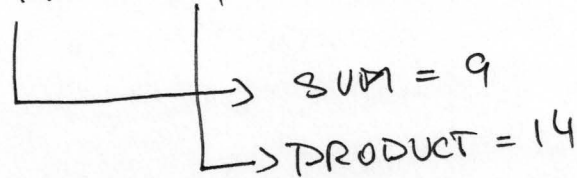
Ex1 $(x+5)(x+2) = x^2 + \underline{2x} + \underline{5x} + 10$
 $= x^2 + 7x + 10$



Ex2 $(x-3)(x+4) = x^2 + \underline{4x} - \underline{3x} - 12$
 $= x^2 + x - 12$



Ex3 $x^2 + 9x + 14$ → FACTOR IT



FIND TWO NUMBERS

$= (x+7)(x+2)$

7, 2

CHECK : $x^2 + 2x + 7x + 14$
 $= x^2 + 9x + 14$ ✓

Ex 4

$$x^2 - 8x + 15$$

$$\begin{array}{l} \text{L} \rightarrow \text{SUM} = -8 \\ \text{L} \rightarrow \text{PRODUCT} = 15 \end{array}$$

$$-5, -3$$

$$= (x - 5)(x - 3)$$

Ex 5

$$x^2 + 3x - 18$$

$$\begin{array}{l} \text{L} \rightarrow P = -18 \\ \text{L} \rightarrow S = 3 \end{array}$$

$$6, -3$$

$$= (x + 6)(x - 3)$$

Ex 6

$$x^2 + x + 1$$

$$\begin{array}{l} \text{L} \rightarrow P = 1 \\ \text{L} \rightarrow S = 1 \end{array}$$

NO NUMBERS

NONFACTORABLE OVER THE INTEGERS

FACTOR COMPLETELY :

Ex 7

$$3x^3 + 15x^2 + 18x$$

$$\text{GCF} = 3x$$

$$= 3x(x^2 + 5x + 6) \rightarrow \begin{array}{l} P = 6 \\ S = 5 \end{array} \parallel 2, 3$$

$$= 3x(x + 2)(x + 3)$$

Ex 8 $3a^2b - 18ab - 81b$ || GCF = $3b$

$= 3b(a^2 - 6a - 27)$

$\begin{array}{l} \text{ } \rightarrow P = -27 \\ \text{ } \rightarrow S = -6 \end{array}$
 $3, -9$

$= 3b(a + 3)(a - 9)$

Ex 9

$x^2 + 9xy + 20y^2$

$\begin{array}{l} \text{ } \rightarrow P = 20 \\ \text{ } \rightarrow S = 9 \end{array}$
|| $5, 4$

$= (x + 5y)(x + 4y)$

CHECK: $x^2 + \underline{4xy} + \underline{5xy} + 20y^2$
 $= x^2 + 9xy + 20y^2$ ✓

Ex 10

$4x^2 - 40xy + 84y^2$

$= 4(x^2 - 10xy + 21y^2)$

$\begin{array}{l} \text{ } \rightarrow P = 21 \\ \text{ } \rightarrow S = -10 \end{array}$
 $-7, -3$

$= 4(x - 7y)(x - 3y)$