

CALCUL LITTÉRAL

Par Jérémy Roux-Latour

DÉVELOPPER UNE EXPRESSION

$$k(a+b) = ka + kb$$

$$\begin{aligned} D &= 3 \times (x + 4) \\ &= 3 \times x + 3 \times 4 \\ D &= 3x + 12 \end{aligned}$$

$$(a+b)(c+d) = ac + ad + bc + bd$$

$$\begin{aligned} E &= (x + 2)(x + 1) \\ &= x \times x + x \times 1 + 2 \times x + 2 \times 1 \\ &= x^2 + x + 2x + 2 \\ E &= x^2 + 3x + 2 \end{aligned}$$

IDENTITÉS REMARQUABLES

1

$$(a + b)^2 = a^2 + 2ab + b^2$$

$$\begin{aligned} I &= (x + 3)^2 \\ &= x^2 + 2 \times x \times 3 + 3^2 \\ I &= x^2 + 6x + 9 \end{aligned}$$

2

$$(a - b)^2 = a^2 - 2ab + b^2$$

$$\begin{aligned} J &= (5 - x)^2 \\ &= 5^2 - 2 \times 5 \times x + x^2 \\ J &= 25 - 10x + x^2 \end{aligned}$$

3

$$(a + b)(a - b) = a^2 - b^2$$

$$\begin{aligned} K &= (x + 4)(x - 4) \\ &= x^2 - 4^2 \\ K &= x^2 - 16 \end{aligned}$$

FACTORISER UNE EXPRESSION

Trouver un facteur commun

$$\begin{aligned} F &= 3(x + 1) + x(x + 1) \\ F &= (x + 1)(3 + x) \\ &\dots\dots\dots \\ F' &= 4 - 2x + (x + 1)(2 - x) \\ &= 2(2 - x) + (x + 1)(2 - x) \\ &= (2 - x)(2 + x + 1) \\ F' &= (2 - x)(x + 3) \end{aligned}$$

3ème identité remarquable

$$\begin{aligned} K &= x^2 - 16 \\ &= x^2 - 4^2 \\ K &= (x + 4)(x - 4) \end{aligned}$$

Autres identités remarquables

$$\begin{aligned} H &= x^2 + 14x + 49 \\ &= x^2 + 2 \times 7 \times x + 7^2 \\ H &= (x + 7)^2 \\ &\dots\dots\dots \\ H' &= 4x^2 - 12x + 9 \\ &= (2x)^2 - 2 \times 2x \times 3 + 3^2 \\ H' &= (2x - 3)^2 \end{aligned}$$