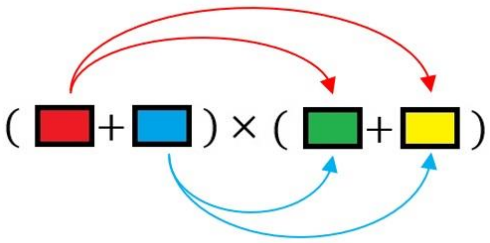
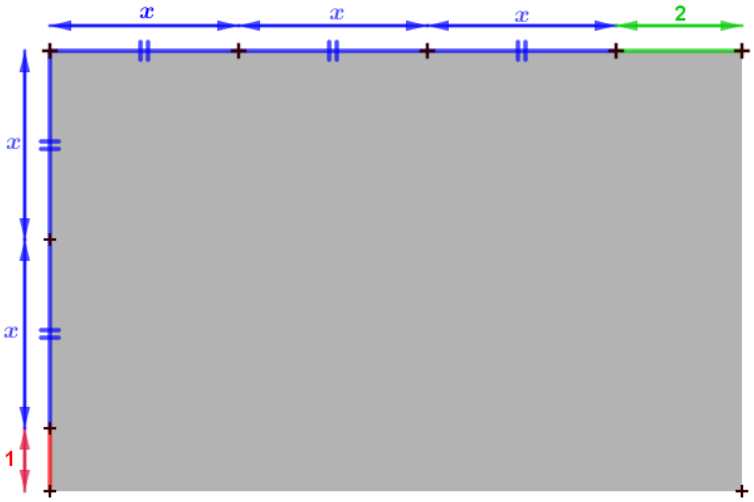
① Comment développer une expression algébrique ?

Développer et réduire $(3x+2)(2x+1)$

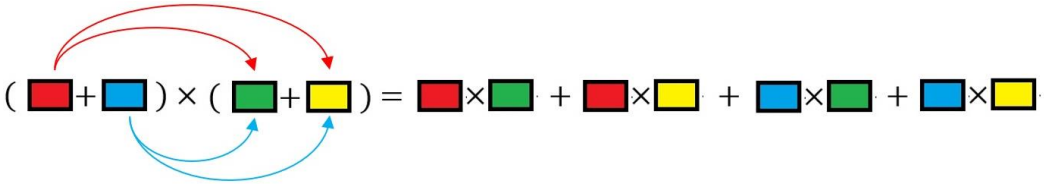
Etape 1 : J'identifie les quatre nombres à distribuer :

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



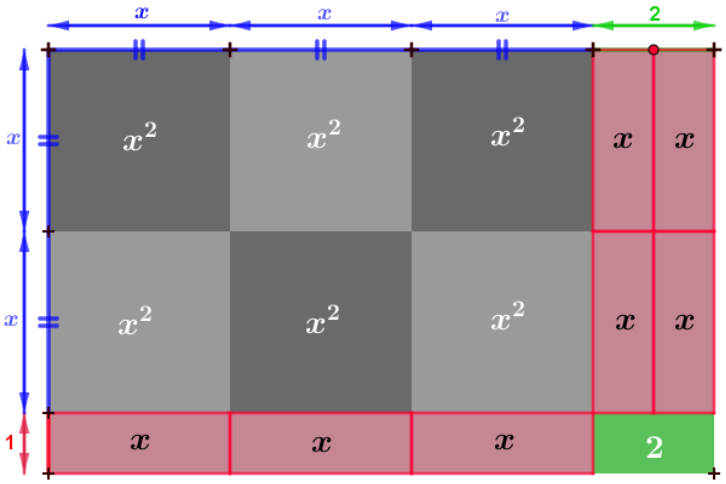


Etape 2 : Je distribue



$$(3x+2)(2x+1) = \underbrace{3x \times 2x}_{6x^2} + \underbrace{3x \times 1}_{3x} + \underbrace{2 \times 2x}_{4x} + \underbrace{2 \times 1}_{2}$$

$$(3x+2)(2x+1) = 6x^2 + 3x + 4x + 2$$



Etape 3 : Je réduis en calculant ce qu'il est possible de calculer

$$(3x+2)(2x+1) = 6x^2 + 3x + 4x + 2$$

$$(3x+2)(2x+1) = 6x^2 + 7x + 2$$

Etape 4 : Je m'exerce :

Développez les expressions :

a) $f(x) = (7-5x)(2x-3)$

b) $g(x) = (5x+3)(7x-2)$

c) $h(x) = (2-4x)(6x-1)$

d) $k(x) = (-3x-7)(2x-9)$

Etape 5 : Je me corrige :

a) $\boldsymbol{f(x) = (7 - 5x)(2x - 3)}$

$$\boldsymbol{f(x) = (7 - 5x)(2x - 3)}$$

$$f(x) = 7 \times 2x + 7 \times (-3) - 5x \times 2x - 5x \times (-3)$$

$$f(x) = 14x - 21 - 10x^2 + 15x$$
$$f(x) = -10x^2 + 29x - 21$$

b) $\boldsymbol{g(x) = (5x + 3)(7x - 2)}$

$$\boldsymbol{g(x) = (5x + 3)(7x - 2)}$$

$$g(x) = 5x \times 7x + 5x \times (-2) + 3 \times 7x + 3 \times (-2)$$

$$g(x) = 35x^2 - 10x + 21x - 6$$
$$g(x) = 35x^2 + 11x - 6$$

c) $\boldsymbol{h(x) = (2 - 4x)(6x - 1)}$

$$\boldsymbol{h(x) = (2 - 4x)(6x - 1)}$$

$$h(x) = 2 \times 6x + 2 \times (-1) - 4x \times 6x - 4x \times (-1)$$

$$h(x) = 12x - 2 - 24x^2 + 4x$$
$$h(x) = -24x^2 + 16x - 2$$

d) $\boldsymbol{k(x) = (-3x - 7)(2x - 9)}$

$$\boldsymbol{k(x) = (-3x - 7)(2x - 9)}$$

$$k(x) = (-3x) \times 2x + (-3x) \times (-9) - 7 \times 2x - 7 \times (-9)$$

$$k(x) = -6x^2 + 27x - 14x + 63$$
$$k(x) = -6x^2 + 13x + 63$$