

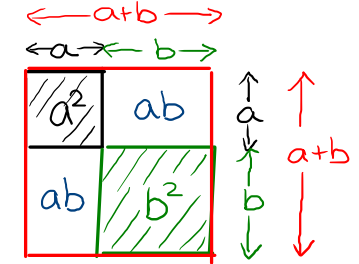
Produits remarquables

$$1. (a+b)^2 = a^2 + 2ab + b^2$$

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

$$3. (a+b)(a-b) = a^2 - b^2$$

$$\text{car } (a+b)(a+b) = \underline{a^2} + \underbrace{ab + ab}_{2ab} + \underline{b^2}$$



Exemples

$$a) (2x+y)^2 = 4x^2 + 4xy + y^2$$

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

$$c) (3a^2-b)(3a^2+b) = (9a^4 + \cancel{3ab^2} - \cancel{3ab^2} - b^2) \\ = 9a^4 - b^2$$

$$4. (a+b)^3 = a^3 + 3a^2b + 3ab^2 + b^3$$

$$5. (a-b)^3 = a^3 - 3a^2b + 3ab^2 - b^3$$

Exemples :

$$d) (x+2)^3 = x^3 + 3x^2 \cdot 2 + 3x \cdot 4 + 8 \\ = x^3 + 6x^2 + 12x + 8$$

$$e) (2x-3y)^3 = 8x^3 - 3 \cdot 4x^2 \cdot 3y + 3 \cdot 2x \cdot 9y^2 - 27y^3 \\ = 8x^3 - 36x^2y + 54xy^2 - 27y^3$$

$$6. (a-b)(a^2+ab+b^2) = a^3 - b^3$$

$$7. (a+b)(a^2-ab+b^2) = a^3 + b^3$$

Exemples :

$$f) (x+2)(x^2-2x+4) = x^3 + 8$$

$$g) (3x-1)(9x^2+3x+1) = 27x^3 - 1$$