

Ex 4 Développer.

$$* A = -4x^2 - (1+x)(-3x+2)$$

$$\begin{aligned} A &= -4x^2 - (-3x + 2 + 3x^2 + 2x) \\ &= -4x^2 - (-3x^2 - x + 2) \\ &= -4x^2 + 3x^2 + x - 2 \end{aligned}$$

$$\boxed{A = -x^2 + x - 2}$$

$$* B = 4(3a+2)^2 - (7-a)$$

$$\begin{aligned} &= 4(9a^2 + 2 \times 3a \times 2 + 4) - 7 + a \\ &= 4(9a^2 + 12a + 4) - 7 + a \\ &= 36a^2 + 48a + 16 - 7 + a \end{aligned}$$

$$\boxed{B = 36a^2 + 49a + 9}$$

$$* C = \left(\frac{2}{3} - 3x\right)^2$$

$$\begin{aligned} &= \left(\frac{2}{3}\right)^2 - 2 \times \frac{2}{3} \times 3x + (3x)^2 \\ &= \frac{4}{9} - 4x + 9x^2 \end{aligned}$$

$$\boxed{C = 9x^2 - 4x + \frac{4}{9}}$$

Ex 5 Factoriser

$$* A = 9x^2 - 36x + 36$$

$$a^2 - 2ab + b^2 ?$$

$$a = 3a \quad b = 6$$

$$-2ab = -2 \times 3a \times 6 = -36a$$

$$\text{donc } \boxed{A = (3a - 6)^2}$$

$$* B = 9b^2 - 4$$

$$B = (3b)^2 - 2^2$$

$$a^2 - b^2$$

$$\boxed{B = (3b+2)(3b-2)} \quad = (a+b)(a-b)$$

$$* C = 25n^2 + 18n + 4$$

$$a^2 + 2ab + b^2 ?$$

$$a = 5n \quad b = 2$$

$$2ab = 2 \times 5n \times 2 = 20n \neq 18n$$

donc non factorisable avec une identité remarquable

Ex 6 Factoriser.

$$* A = 3xe(2-x) - (2-x)(-7+x)$$

$$\begin{aligned} A &= (2-x)(3xe - (-7+x)) \\ &= (2-x)(3xe + 7 - x) \end{aligned}$$

$$\boxed{A = (2-x)(2x+7)}$$

$$* B = 4(5-x)^2 + (5-x)$$

$$\begin{aligned} B &= (5-x)(4(5-x) + 1) \\ &= (5-x)(20 - 4x + 1) \end{aligned}$$

$$\boxed{B = (5-x)(-4x+21)}$$

$$* C = 4xe(6-x) + 36 - x^2$$

$$C = 4xe(6-x) + (6-x)(6+x)$$

$$C = (6-x)(4x + (6+x))$$

$$\boxed{C = (6-x)(5x+6)}$$

$$* D = (4+x)^2 - (1-3x)^2$$

$$D = (4+x+1-3x)(4+x-(1-3x))$$

$$D = (-2x+5)(4+x-1+3x)$$

$$\boxed{D = (-2x+5)(4x+3)}$$

Ex 7

$$1) \frac{k}{c} = \frac{3a}{b}$$

Exprimer a

$$\frac{3a}{b} = \frac{k}{c}$$

$$3a = \frac{kb}{c}$$

$$a = \frac{kb}{c} : 3$$

$$a = \frac{kb}{c} \times \frac{1}{3}$$

$$\boxed{a = \frac{kb}{3c}}$$

$$2) \frac{1}{a} + \frac{1}{b} = 2$$

Exprimer b.

$$\frac{1}{b} = 2 - \frac{1}{a}$$

$$b = \frac{1}{2 - \frac{1}{a}}$$

$$b = \frac{1}{\frac{2a}{a} - \frac{1}{a}}$$

$$b = \frac{1}{\frac{2a-1}{a}}$$

$$\boxed{b = \frac{a}{2a-1}}$$