

2.2.1 Factoriser:

$$\text{m) } \frac{(x-3)(x+1)}{(x-3)} + 2(x-3)^2 - (x-3)$$

$$= (x-3) \left[\frac{(x+1)}{(x-3)} + \frac{2(x-3)}{(x-3)} - \frac{1}{(x-3)} \right]$$

$$= (x-3) [x+1 + 2x - 6 - 1]$$

$$= (x-3)(3x-6) = 3(x-3)(x-2)$$

$$\text{g) } 2yz^5 + 8y^2z^4 + 6y^3z^3 - 2y^4z^2$$

$$= 2yz^2 (z^3 + 4y^2z^2 + 3y^3z - y^4)$$

$$\text{n) } (u+v)^3 - (u+v)^2 = (u+v)^2 [(u+v) - 1]$$

$$A^2 - B^2 = (A - B)(A + B)$$

* $A^2 + B^2$ pas factorisable

$$A^2 \pm 2AB + B^2 = (A \pm B)^2$$

$$A^3 - B^3 = (A - B)(A^2 + AB + B^2)$$

$$A^3 + B^3 = (A + B)(A^2 - AB + B^2)$$

2.2.2 Factoriser :

$$c) a^2 - \frac{1}{16} = a^2 - \left(\frac{1}{4}\right)^2 = \left(a - \frac{1}{4}\right) \left(a + \frac{1}{4}\right)$$

$$e) (\underbrace{ax + 2y}_A)^2 - (\underbrace{2x - 3y}_B)^2$$

$$\begin{aligned}&= ((ax + 2y) - (2x + 3y)) ((ax + 2y) + (2x + 3y)) \\&= (ax + 2y - 2x - 3y)(ax + 2y + 2x + 3y) \\&= (ax - 2x - y)(ax + 2x + 5y)\end{aligned}$$

$$\text{j)} \quad a^5 - a = a(a^4 - 1) = a((a^2)^2 - 1)$$

$$= a(a^2 - 1)(a^2 + 1)$$

$$= a(a-1)(a+1)(a^2+1)$$

$$(a^2 - 1)(a^3 + a)$$

$$(a-1)(a+1) \quad a(a^2+1)$$

2.2.4 Factoriser :

a) $x^2 + 5x + 6$

e) $9x^2 + 6x + 1$

i) $6x^2 + 5x + 1$

m) $40x^2 + 3x - 28$

Trinôme du deuxième degré (unitaire)

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

2) $x^2 + \underset{S}{5}x + \underset{P}{6} = (x+2)(x+3)$

$$6 = \begin{bmatrix} 2 & 3 \\ \uparrow & \end{bmatrix}$$

e) $9x^2 + 6x + 1 = (3x+1)^2$

i) $6x^2 + 5x + 1 = (2x+1)(3x+1)$

m) $40x^2 + 3x - 28 = (5x-4)(8x+7)$

m) $40x^2 + 3x - 28 = 0$

p

$$\Delta = 3^2 - 4 \cdot 40 \cdot (-28) = 4489 = 67^2$$

zéros de p : $\frac{-3 \pm 67}{80} = \begin{cases} -20/80 = -\frac{1}{4} \\ 64/80 = \frac{4}{5} \end{cases}$

$p = 40(x + \frac{1}{4})(x - \frac{4}{5})$

$$= 8 \cdot 5 (x + \frac{1}{4})(x - \frac{4}{5})$$

$$= (8x + 4)(5x - 4)$$

2.2.5 Factoriser :

$$\text{a) } x^4 - 13x^2 + 36 \Rightarrow (x^2)^2 - 13(x^2) + 36$$

$$x^2 - 13x + 36 = (x - 4)(x - 9)$$

$$= (x^2 - 4)(x^2 - 9)$$

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