

2.1.3

f)  $(4 + 2z^2)^3$

1<sup>ère</sup> méthode :  $(A+B)^3 = A^3 + 3A^2B + 3AB^2 + B^3$

$$A = 4, \quad B = 2z^2$$

$$(4 + 2z^2)^3 = 4^3 + 3 \cdot 4^2 \cdot 2z^2 + 3 \cdot 4 \cdot (2z^2)^2 + (2z^2)^3$$

$$= 64 + 96z^2 + 12 \cdot 4z^4 + 8z^6$$

$$= \underline{\underline{64 + 96z^2 + 48z^4 + 8z^6}}$$

2<sup>ème</sup> méthode :  $(4 + 2z^2)^3 = (4 + 2z^2) \cdot (4 + 2z^2)^2$

$$= (4 + 2z^2) \cdot (16 + 16z^2 + 4z^4)$$

$$= \underline{\underline{64 + 96z^2 + 48z^4 + 8z^6}}$$

|                 |                  |                  |                  |
|-----------------|------------------|------------------|------------------|
|                 | 16               | 16z <sup>2</sup> | 4z <sup>4</sup>  |
| 4               | 64               | 64z <sup>2</sup> | 16z <sup>4</sup> |
| 2z <sup>2</sup> | 32z <sup>2</sup> | 32z <sup>4</sup> | 8z <sup>6</sup>  |

2.1, 3

$$k) (b^2 - c^3)(b^2c^3 + b^4 + c^6) = b^6 - c^9$$

|        |           |           |          |
|--------|-----------|-----------|----------|
|        | $b^2c^3$  | $b^4$     | $c^6$    |
| $b^2$  | $b^4c^3$  | $b^6$     | $b^2c^6$ |
| $-c^3$ | $-b^2c^6$ | $-b^4c^3$ | $-c^9$   |

2.1.4 Réduire au maximum.



$$\begin{aligned}
 \text{e) } & \underline{(3x+y)(3x-y)} - \underline{(3x+2y)^2} - \underline{(x-3y)^2} \\
 &= \underline{9x^2 - y^2} - (9x^2 + 12xy + 4y^2) - (x^2 - 6xy + 9y^2) \\
 &= \underline{9x^2} - \underline{y^2} - \underline{9x^2} - \underline{12xy} - \underline{4y^2} - \underline{x^2} + \underline{6xy} - \underline{9y^2} \\
 &= -x^2 - 6xy - 14y^2
 \end{aligned}$$

2.1.5 Réduire au maximum.

$$\text{a) } \underbrace{-(6ab^2 - 7x^3)(6ab^2 + 7x^3)} = - (36a^2b^4 - 49x^6) = -36a^2b^4 + 49x^6$$

$$(6ab^2)^2 = \underbrace{6ab^2 \cdot 6ab^2} =$$

$$(7x^3)^2 = 49x^6$$

$$\text{c) } \underline{(3x-2y)^2} - \underline{(4x+5y)^2} - \underline{2(2x-y)(3x-5y)}$$

$$= \underline{(9x^2 - 12xy + 4y^2)} - \underline{(16x^2 + 40xy + 25y^2)} - 2 \underline{(6x^2 - 10xy - 3xy + 5y^2)}$$

$$= \underline{9x^2} - \underline{12xy} + \underline{4y^2} - \underline{16x^2} - \underline{40xy} - \underline{25y^2} - \underline{12x^2} + \underline{20xy} + \underline{6xy} - \underline{10y^2}$$

$$= -19x^2 - 26xy - 31y^2$$