

Addition et soustraction de polynômes

$$\left. \begin{array}{l} p(x) = a_0 + a_1x + \dots + a_nx^n \\ q(x) = b_0 + b_1x + \dots + b_mx^m \end{array} \right\} p(x) \pm q(x) = (a_0 \pm b_0) + (a_1 \pm b_1)x + \dots + (a_i \pm b_i)x^i + \dots$$

① Simplifier :

$$\begin{aligned} & 5(4x-8) - 3(8x-8) \\ &= 20x - 40 - (24x - 24) \\ &= 20x - 24x - 40 + 24 \\ &= -4x - 16. \end{aligned}$$

② Trouver $A + B$.

$$\begin{array}{r} A = x^2 - 6x + 10 \\ B = 3x^3 - 7x^2 + x + 1 \\ \hline A+B = 3x^3 - 6x^2 - 5x + 11 \end{array}$$

③ $p(x) = 3x^2 - 5x \cdot (5x+8 - (8-5x^2 + (8x^2-x+1)))$

$$\begin{aligned} \bullet \quad 8-5x^2 + (8x^2-x+1) &= 8x^2-5x^2 -x + 8 + 1 \\ &= 3x^2 - x + 9 \end{aligned}$$

$$\begin{aligned} \bullet \quad 5x+8 - (3x^2-x+9) &= -3x^2 + 5x + x + 8 - 9 \\ &= -3x^2 + 6x - 1 \end{aligned}$$

$$\begin{aligned} \bullet \quad p(x) &= 3x^2 - 5x(-3x^2 + 6x - 1) \\ &= 3x^2 + 15x^3 - 30x^2 + 5x \\ &= 15x^3 - 27x^2 + 5x. \end{aligned}$$