

Exercices sur les factorisations



Factoriser les expressions suivantes :

$$A(x) = (3x + 2)^2 + (3x - 2)(6x + 4)$$

$$B(x) = 2(x - 2)(x + 3) + (2x - 3)(4 - 2x)$$

$$C(x) = (x - 2)^2 - (3x + 1)^2$$

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

$$F(x) = (9x^2 - 4) + (2 - 3x)(x + 4)$$

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

Corrigé

$$\begin{aligned} A(x) &= (3x + 2)^2 + (3x - 2)(6x + 4) \\ &= (3x + 2)^2 + 2(3x - 2)(3x + 2) \\ &= (3x + 2)[(3x + 2) + 2(3x - 2)] \\ &= (3x + 2)(9x - 2) \end{aligned}$$

$$\begin{aligned} B(x) &= 2(x - 2)(x + 3) + (2x - 3)(4 - 2x) \\ &= (2x - 4)(x + 3) - (2x - 3)(2x - 4) \\ &= (2x - 4)[(x + 3) - (2x - 3)] \\ &= (2x - 4)(-x + 6) \end{aligned}$$

$$\begin{aligned} C(x) &= (x - 2)^2 - (3x + 1)^2 \\ &= [(x - 2) - (3x + 1)][(x - 2) + (3x + 1)] \\ &= (-2x - 3)(4x - 1) \end{aligned}$$

$$\begin{aligned} D(x) &= (x + 1)^2 + (x - 2)(3x + 3) + (x + 1) \\ &= (x + 1)^2 + 3(x - 2)(x + 1) + (x + 1) \\ &= (x + 1)[(x + 1) + 3(x - 2) + 1] \\ &= (x + 1)(4x - 4) \end{aligned}$$

$$\begin{aligned} E(x) &= (3x - 4)(x - 2) - 3(x^2 - 4x + 4) - (x + 1)(2 - x) \\ &= (3x - 4)(x - 2) - 3(x - 2)^2 + (x + 1)(x - 2) \\ &= (x - 2)[(3x - 4) - 3(x - 2) + (x + 1)] \\ &= (x - 2)(x + 3) \end{aligned}$$

$$\begin{aligned} F(x) &= (9x^2 - 4) + (2 - 3x)(x + 4) \\ &= (3x - 2)(3x + 2) - (3x - 2)(x + 4) \\ &= (3x - 2)[(3x + 2) - (x + 4)] \\ &= (3x - 2)(2x - 2) \end{aligned}$$