

Factoriser

Solutions des exercices

I)

1.

$$\begin{aligned} a(6x - 15) + b(4x - 10) &= 3a(2x - 5) + 2b(2x - 5) \\ &= \boxed{(2x - 5)(3a + 2b)} \end{aligned}$$

2.

$$x + x^2 = \boxed{x(1 + x)}$$

3.

$$\begin{aligned} (1 - x)^2 + x - 1 &= (1 - x)^2 - (1 - x) \\ &= (1 - x)(1 - x - 1) \\ &= \boxed{(1 - x)(-x)} \end{aligned}$$

4.

$$\begin{aligned} 1 - 2x + (4x - 2)^2 &= 1 - 2x + (2(2x - 1))^2 \\ &= 1 - 2x + 4(2x - 1)^2 \\ &= -(2x - 1) + 4(2x - 1)^2 \\ &= (2x - 1)(-1 + 4(2x - 1)) \\ &= (2x - 1)(-1 + 8x - 4) \\ &= \boxed{(2x - 1)(8x - 5)} \end{aligned}$$

5.

$$\begin{aligned} 2 - 3x + (2x - 3)(3x - 2) &= (2 - 3x) - (2x - 3)(2 - 3x) \\ &= (2 - 3x)(1 - (2x - 3)) \\ &= (2 - 3x)(1 - 2x + 3) \\ &= \boxed{(2 - 3x)(4 - 2x)} \end{aligned}$$

6.

$$\begin{aligned} (1 - x)^2 + x^2 - 1 &= (1 - x)^2 + (x + 1)(x - 1) \\ &= (1 - x)^2 - (x + 1)(1 - x) \\ &= (1 - x)(1 - x - (x + 1)) \\ &= \boxed{(1 - x)(-2x)} \end{aligned}$$

II)

1.

$$x^2 - x + \frac{1}{4} = \boxed{\left(x - \frac{1}{2}\right)^2}$$

2.

$$6x^2 + 3x + \frac{3}{8} = 6 \left(x^2 + \frac{1}{2}x + \frac{1}{16} \right) = \boxed{6 \left(x + \frac{1}{4} \right)^2}$$

3.

$$x^2 - 16 = \boxed{(x + 4)(x - 4)}$$

4.

$$2x^2 - 1 = \boxed{(\sqrt{2}x + 1)(\sqrt{2}x - 1)}$$

5.

$$4x^2 - 9 = \boxed{(2x + 3)(2x - 3)}$$

6.

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