

REVISION EXAMEN FINAL - FACTORISATION
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1. Développe et simplifie :

$$\begin{aligned} \text{a) } (3x - 7)^2 - 5(x + 2) &= 9x^2 - 42x + 49 - 5x - 10 \\ &= 9x^2 - 47x + 39 \end{aligned}$$

$$\begin{aligned} \text{b) } (x - 1)(x + 3) - (3x - 5)(2x - 5) &= x^2 + 2x - 3 - (6x^2 - 25x + 25) \\ &= -5x^2 + 27x - 28 \end{aligned}$$

$$\begin{aligned} \text{c) } 4 - 3(x - 2) - (x + 3)(7x - 5) &= 4 - 3x + 6 - (7x^2 + 16x - 15) \\ &= -7x^2 - 19x + 25 \end{aligned}$$

$$\begin{aligned} \text{d) } (2x - 3)(2x + 3) - (4x - 1)^2 &= 4x^2 - 9 - (16x^2 - 8x + 1) \\ &= -12x^2 + 8x - 10 \end{aligned}$$

$$\begin{aligned} \text{e) } (2x - 3)(4x - 5)(6x - 1) &= (8x^2 - 10x - 12x + 15)(6x - 1) \\ &= 48x^3 - 140x^2 + 112x - 15 \end{aligned}$$

2. Factorise au maximum :

$$\text{a) } x^2 - 2x - 3 = (x - 3)(x + 1)$$

$$\text{b) } 25x^2 - 30x + 9 = (5x - 3)^2$$

$$\text{c) } 6x^2 + x - 1 = (2x + 1)(3x - 1)$$

$$\text{d) } 81x^2 - 49 = (9x + 7)(9x - 7)$$

$$\text{e) } 0,25x^2 - 0,04 = (0,5x - 0,2)(0,5x + 0,2)$$

$$f) (2x+3)^2 - 4(2x+3) - 12 = t^2 - 4t - 12$$

$$\text{soit } t = 2x+3$$

$$= (t-6)(t+2)$$

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

$$= (2x-3)(2x+5)$$

$$g) 6(x+2)^2 - 11(x+2) - 7 = 6t^2 - 11t - 7$$

$$\text{soit } t = x+2$$

$$= (2t+1)(3t-7)$$

$$= (2(x+2)+1)(3(x+2)-7)$$

$$= (2x+5)(3x-1)$$

$$h) 3(x+5)^2 - 23(x+5) + 20 = 3t^2 - 23t + 20$$

$$\text{soit } t = x+5$$

$$= (t-1)(3t-20)$$

$$= (x+5-1)(3(x+5)-20)$$

$$= (x+4)(3x-5)$$

$$i) (x^2-9)^2 - 16(x+3)^2 = (x+3)^2(x-3)^2 - 16(x+3)^2$$

$$= (x+3)^2((x-3)^2 - 16)$$

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

$$= (x+3)^2(x+1)(x-7)$$

$$j) 4(x-5)^2 - 9(x+1)^2$$

$$= (2(x-5) - 3(x+1))(2(x-5) + 3(x+1))$$

$$= (2x-10 - 3x-3)(2x-10 + 3x+3)$$

$$= (-x-13)(5x-7)$$

$$= -(x+13)(5x-7)$$