

$$\bullet f(x) = -4x^2 - 8x - 9$$

$$a = -\frac{b}{2a} = \frac{-(-8)}{2 \times -4} = -1$$

$$b = f(a) = f(-1)$$

$$= -4 \times (-1)^2 - 8 \times (-1) - 9$$

$$= -5$$

$$f(x) = -4(x + 1)^2 - 5$$

$$\bullet f(x) = -x^2 + 6x - 10$$

$$\alpha = \frac{-6}{-2} = 3$$

$$\begin{aligned} \beta &= f(3) = -3^2 + 6 \times 3 - 10 \\ &= -9 + 18 - 10 \\ &= -1 \end{aligned}$$

$$f(x) = -(x-3)^2 - 1$$

- $f(x) = -x^2 + 10x - 30$

$$\alpha = \frac{-b}{2a} = \frac{-10}{2 \cdot (-1)} = 5$$

$$\beta = f(\alpha) = -25 + 50 - 30 \\ = -5$$

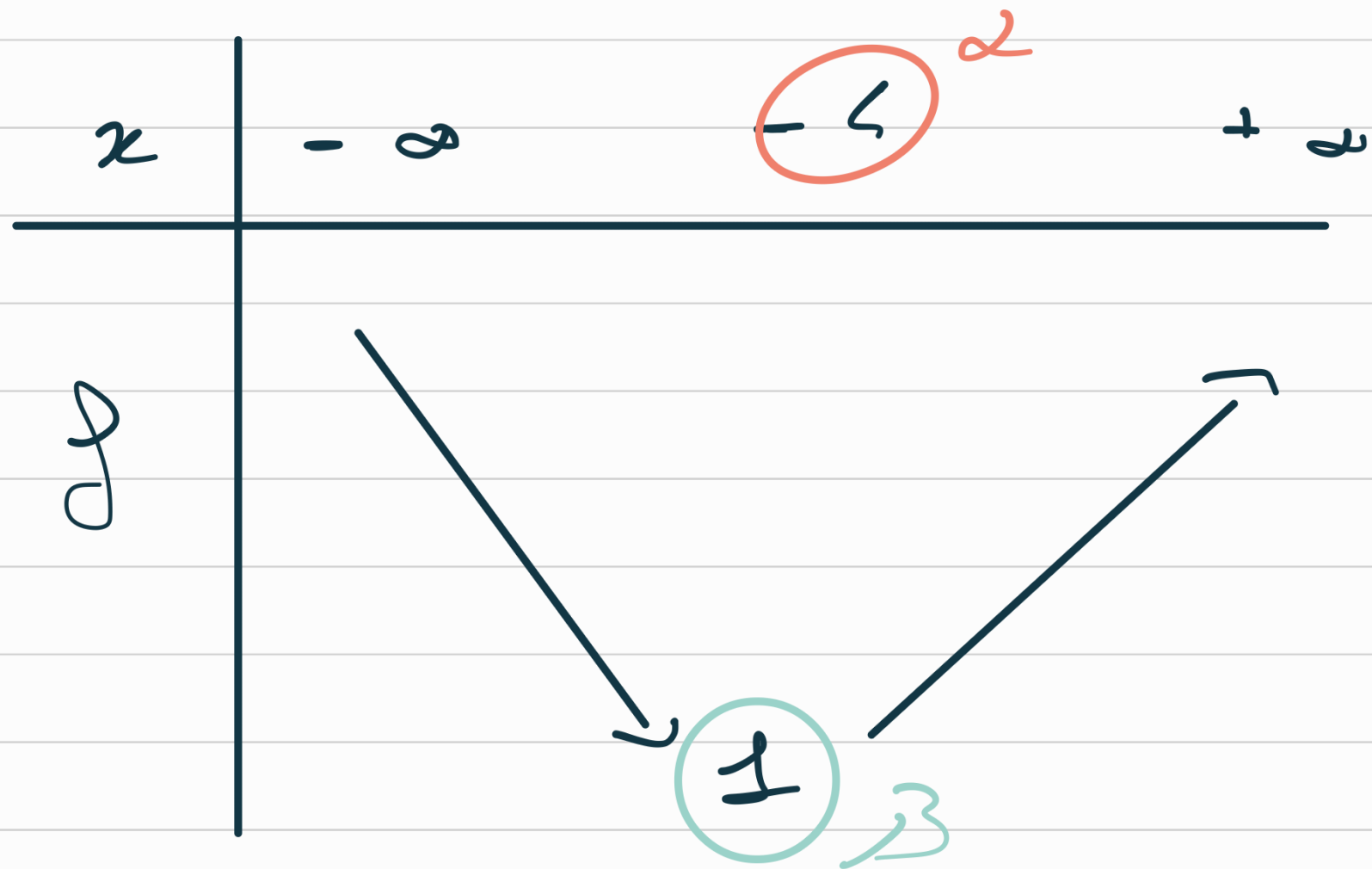
$$f(x) = -(x-5)^2 - 5$$

- $f(x) = 4x^2 - 8x + 3$

$$a = \frac{8}{8} = 1$$

$$b = f(1) = 4 - 8 + 3$$
$$= -1$$

$$f(x) = 4(x-1)^2 - 1$$



$$f(-2) = 21.$$

$$f(x) = ax^2 + bx + c$$

↳ recherche

$a > 0$  :   $\rightarrow \text{min}$

$a < 0$  :   $\rightarrow \text{max}$

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$$f(x) = a(x - \alpha)^2 + \beta$$

$$f(x) = a(x + 4)^2 + 1$$

or  $f(-2) = 21$

$\rightarrow$  replace  $-2$  into  $f(x)$

$$f(-2) = a(-2 + 4)^2 + 1$$

$$f(-2) = 4a + 1$$

done  $2a + 1 = 21$

$$a = 5$$

$(x+4)(x+4)$

done :  $f(x) = 5(x+4)^2 + 1$

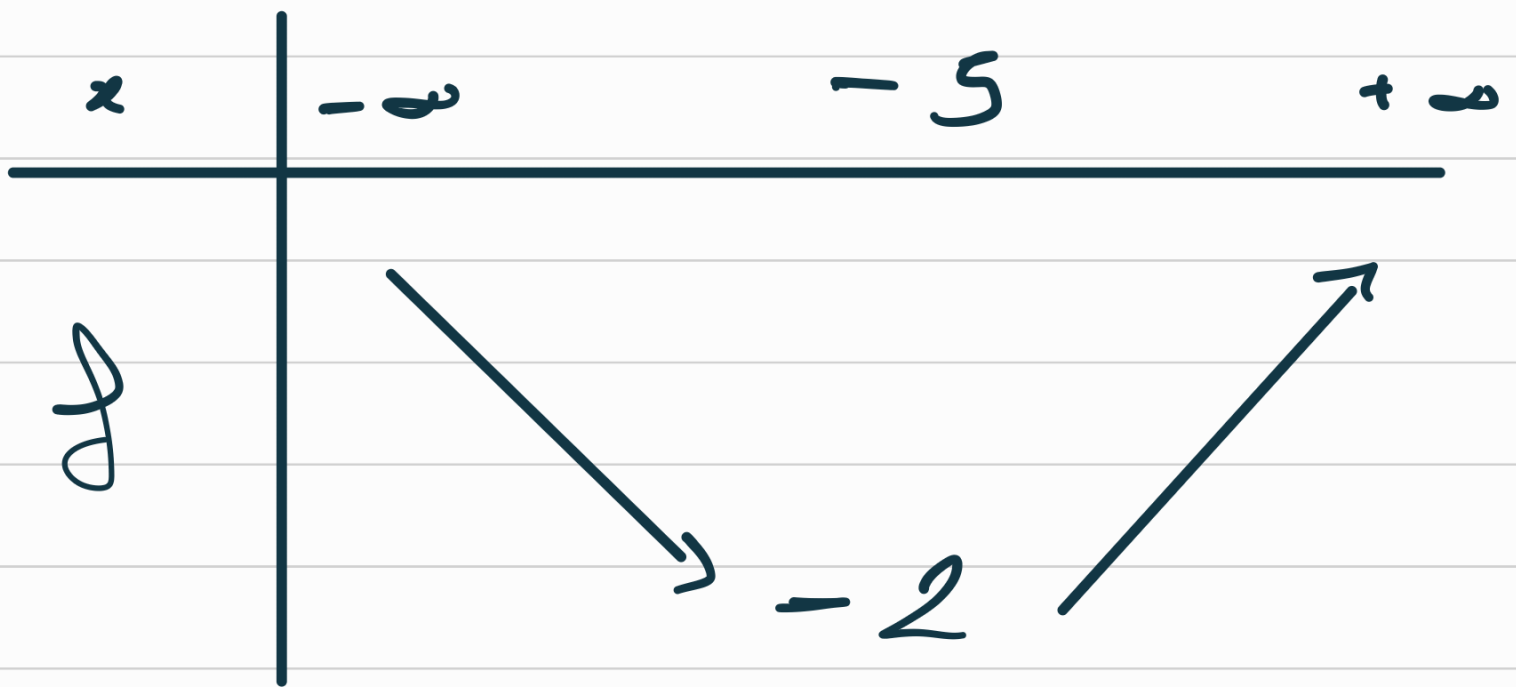
$$= 5(x^2 + 8x + 16) + 1$$

$$= 5x^2 + 40x + 80 + 1$$

$$(a + b)^2 = a^2 + 2x \times b + b^2$$

done

$$f(x) = 5x^2 + 40x + 81$$



$$h(-8) = 25$$

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$$h(x) = a(x+5)^2 - 2$$

$$\begin{aligned} \text{or } h(-8) &= a(-8+5)^2 - 2 \\ &= 9a - 2 \end{aligned}$$

$$9a - 2 = 25 \Rightarrow a = 3$$



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

$$= 3(x^2 + 10x + 25) - 2$$

$$= 3x^2 + 30x + 75 - 2$$

$$= 3x^2 + 30x + 73$$

$$\alpha = 2, \quad \beta = 1$$

$$h(3) = 5$$

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$$h(x) = a(x-2)^2 + 1$$

$$h(3) = a + 1$$

$$\text{L, } a + 1 = 5 \Rightarrow a = 4$$

$$h(x) = 4(x-2)^2 + 1$$

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

$$= 4x^2 - 16x + 16 + 1$$

$$= 4x^2 - 16x + 17$$

D'axe de symétrie a  
pour équation  $x = \alpha$

Sommet :  $S(\alpha; \beta)$

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

$$\alpha = \frac{-b}{2a} = \frac{-4}{-2} = 2$$

$L_1$  droite d'équation  $x = 2$

$$2 = 2$$

$$B = f(2) = -2^2 + 4 \times 2 - 3$$

$$= -4 + 8 - 3$$

$$= 1$$

L, sommer  $S(2; t)$ .

$$3x^2 + 30x + 77$$

$$L, \alpha = \frac{-30}{6} = -5$$

$$\beta = f(-5) = 2$$

$$x = -5$$

$$S(-5; 2)$$

$$\hookrightarrow \left( x - \frac{6+\sqrt{3}}{2} \right) \left( x - \frac{6-\sqrt{3}}{2} \right)$$

$$= \hookrightarrow \left( x^2 - \frac{6-\sqrt{3}}{2}x - \frac{6+\sqrt{3}}{2}x + \frac{6+\sqrt{3}}{2} \times \frac{6-\sqrt{3}}{2} \right)$$

$$= \hookrightarrow \left( x^2 - 6x + \frac{33}{4} \right)$$

$$= \hookrightarrow x^2 - 24x + 33$$

$$\alpha = 3$$

$$\beta = -3$$