

Étude complète de

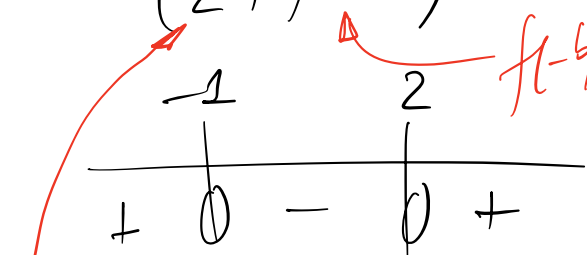
$$f: \mathbb{R} \rightarrow \mathbb{R}$$
$$x \mapsto x^2 - x - 2 = x^2 - (x+2)$$

$D_f = \mathbb{R}$ (polynôme)

$$f(0) = -2$$

Zéros: $x^2 - x - 2 = (x-2)(x+2)$

$S\left(\frac{1}{2}; f\left(\frac{1}{2}\right)\right)$ $f\left(\frac{1}{2}\right) = \frac{1}{4} - \frac{1}{2} - 2 = -\frac{9}{4} = -2.25$



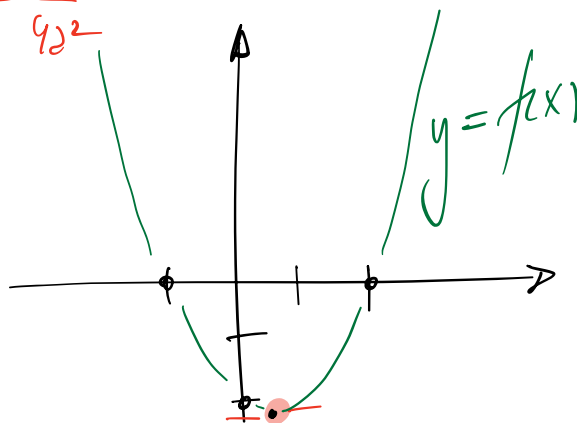
$-\frac{b}{2a}$

$(2x^2 + bx + c)'$

$= 2 \cdot 2x + b + 0$

$= 2x + b$

$2x + b = 0 \Leftrightarrow 2x = -b \Leftrightarrow x = -\frac{b}{2a}$



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$$f: \mathbb{R} \rightarrow \mathbb{R}$$

$$x \mapsto x^2 - |x+2|$$

$$|a| = \begin{cases} a & \text{si } a \geq 0 \\ -a & \text{sinon} \end{cases}$$

$$|x+2| = \begin{cases} x+2 & \text{si } x \geq -2 \\ -x-2 & \text{si } x < -2 \end{cases}$$

$$x \geq -2$$

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

$$f(-2) = 4$$

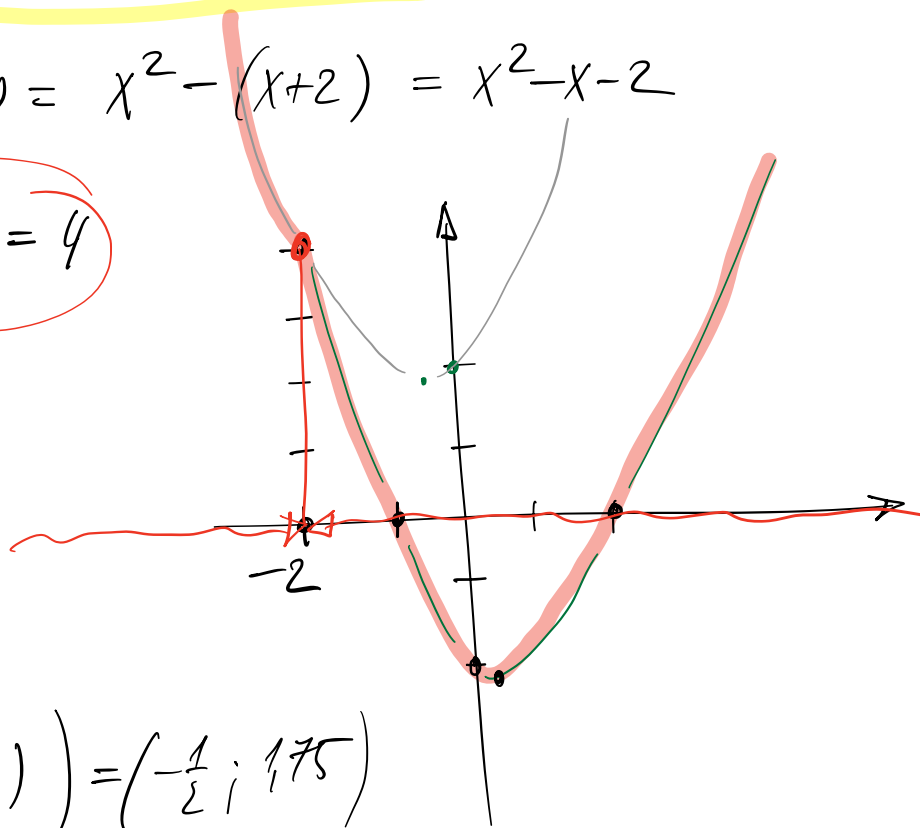
$$x < -2$$

$$f(x) = x^2 + x + 2$$

$$\Delta = 1 - 8 < 0$$

$$S = \left(-\frac{1}{2}; f\left(-\frac{1}{2}\right)\right) = \left(-\frac{1}{2}; 1.75\right)$$

$$f(-2) = 4$$



$$f(x) = x^2 - |x+2| \quad \text{et } x < -2$$

$$|x+2| = \begin{cases} x+2 & \text{si } x \geq -2 \\ -(x+2) & \text{si } x < -2 \end{cases} \Leftrightarrow -x-2 \text{ si } x < -2$$

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