

$$f(x) = \frac{x^3 + 2}{2x}$$

$$\textcircled{1} D_f = \mathbb{R}^* = \mathbb{R} - \{0\}$$

$$x \approx -1,26$$

$$f(x) = 0 \Leftrightarrow x^3 + 2 = 0 \Leftrightarrow x^3 = -2 \Leftrightarrow x = -\sqrt[3]{2}$$

$$\begin{array}{c} -1,26 \quad 0 \\ \hline + \quad 0 \quad - \quad || \quad + \end{array}$$

$$f(1) = \frac{3}{2} > 0$$

$$f(-2) = \frac{-6}{-4} > 0$$

$$\textcircled{2} \lim_{x \rightarrow 0} f(x) = \lim_{x \rightarrow 0} \frac{x^3 + 2}{2x}$$

$$= \ll \frac{0^3 + 2}{0} \gg = \ll \frac{2}{0} \gg = \infty$$

$$\Rightarrow \boxed{\text{A.V. en } x=0}$$

Vu que $\deg(x^3 + 2) - \deg(2x) = 3 - 1 = 2$,
il n'y a pas d'A.H. ni d'A.O.

$$\lim_{x \rightarrow \infty} f(x) = \lim_{x \rightarrow \infty} \frac{x^3 + 2}{2x} = \lim_{x \rightarrow \infty} \frac{x^3}{2x}$$

$$= \lim_{x \rightarrow \infty} \frac{x^2}{2} = +\infty$$

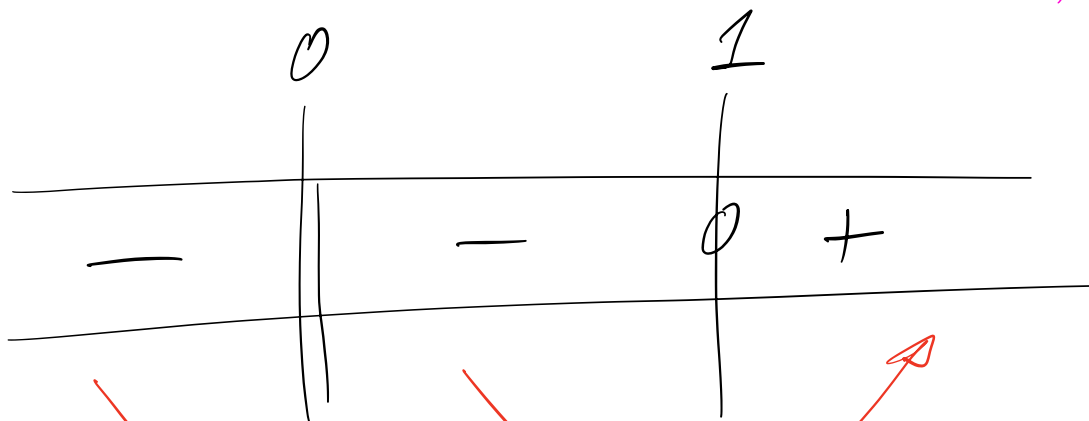
$$\textcircled{3} f'(x) = \left(\frac{x^3 + 2}{2x} \right)' = \frac{(x^3 + 2)' \cdot 2x - (x^3 + 2) \cdot (2x)'}{(2x)^2}$$

$$= \frac{3x^2 \cdot 2x - (x^3 + 2) \cdot 2}{4x^2} = \frac{6x^3 - 2x^3 - 4}{4x^2}$$

$$= \frac{4(x^3 - 1)}{4x^2} = \frac{x^3 - 1}{x^2}$$

$$f'(x) = 0 \Leftrightarrow x^3 = 1 \Leftrightarrow x = 1$$

$$f'(2) = \frac{7}{4} > 0$$



$$\text{MIN}(1; f(1)) = (1; 45)$$

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