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

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

$x \simeq -1{,}26$

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

x		$-1{,}26$		0	
$f(x)$	$+$	0	$-$	$\|\|$	$+$

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

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

② $\lim\limits_{x \to 0} f(x) = \lim\limits_{x \to 0} \frac{x^3+2}{2x}$

$= « \frac{0^3+2}{0} » = « \frac{2}{0} » = \infty$

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

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

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

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

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

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

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

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

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

	0		1	
−	‖	−	0	+
↘		↘		↗

MIN $(1; f(1)) = (1; 1{,}5)$

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