

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

1. Domaine de definition

$$\text{Dom } f = \mathbb{R} \setminus \{0\}$$

2. Signe de f

x		$-\sqrt[3]{2}$		0	
$\frac{x^3+2}{x^2}$	-	0	+		+

3. Limites et asymptotes

$$\lim_{x \rightarrow 0^+} \frac{x^3 + 2}{x^2} = \infty$$

$$\text{AV} \equiv x = 0$$

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

$$\lim_{x \rightarrow -\infty} \frac{x^3 + 2}{x^2} = -\infty$$

$$\text{AO} \equiv y = x$$

4. Intersection avec les axes

$$\text{Gf} \cap X = \{(-\sqrt[3]{2}, 0)\}$$

$$\text{Gf} \cap Y = \{\}$$

5. Etude de f'

$$f'(x) = \frac{x^3 - 4}{x^3}$$

x		0		$2^{2/3}$	
$\frac{x^3-4}{x^3}$	+		-	0	+

$$\text{Min} : (2^{2/3}, \frac{3}{\sqrt[3]{2}})$$

6. Etude de f''

$$f''(x) = \frac{12}{x^4}$$

x		0	
$\frac{12}{x^4}$	+		+

7. Tableau recapitulatif

x	$-\infty$		$-\sqrt[3]{2}$		0		$2^{2/3}$		∞
f(x)	$-\infty$	-	0	+		+	$\frac{3}{\sqrt[3]{2}}$	+	∞
	y = x						Min		y = x
pente	1	+	3	+		-	0	+	1
concavite	0	+	$3 \cdot 2^{2/3}$	+		+	$\frac{3}{2^{2/3}}$	+	0

8. Graphe de f

