

2.10.6

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

extremum (... ; 8)

$$f(x) = 8 \Leftrightarrow \frac{x^2}{x+k} = 8$$

$$f'(x) = \frac{2x(x+k) - x^2}{(x+k)^2} = \frac{x^2 + 2kx}{(x+k)^2} = \frac{x(x+2k)}{(x+k)^2} = 0$$

zéros de f' : 0 et $-2k$ (extremum ou palier)

$$\Rightarrow f(0) = 0$$

$$f(-2k) = \frac{4k^2}{-2k+k} = \frac{4k^2}{-k} = -4k = 8 \Leftrightarrow \underline{k = -2}$$

$$\Rightarrow f(x) = \frac{x^2}{x-2} \quad \text{et} \quad f'(x) = \frac{x(x-4)}{(x-2)^2}$$

zéros : 0 et 4

v.i : 2 (2)

x	0	2	4
sgn(f')	+	-	-
crsce(f)	↗ Max	↘	↗ min

$$\Rightarrow \underline{\min(4; 8)}$$

$$\lim_{x \rightarrow -\infty} \frac{x^2}{x-2} = \lim_{x \rightarrow -\infty} \frac{x^2}{x_1} = \lim_{x \rightarrow -\infty} x = -\infty < 8 \Rightarrow \underline{\text{min local.}}$$

$$\text{ou } \lim_{x \rightarrow 2^-} \frac{x^2}{x-2} = \frac{4}{0_-} = -\infty < 8 \quad \dots$$