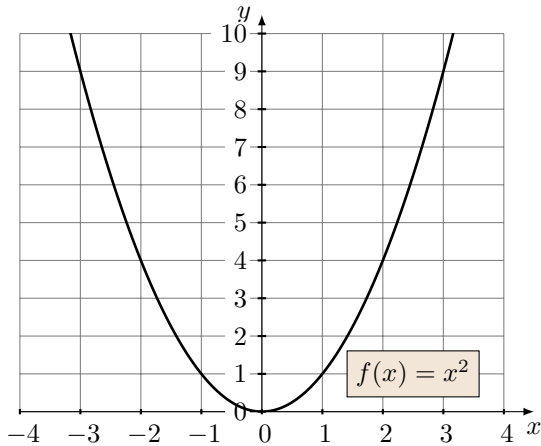


Limites de fonctions - Cours

- avril 2021

1 Tableaux de variations et limites des fonctions de référence

- Fonction carré $x \mapsto x^2$

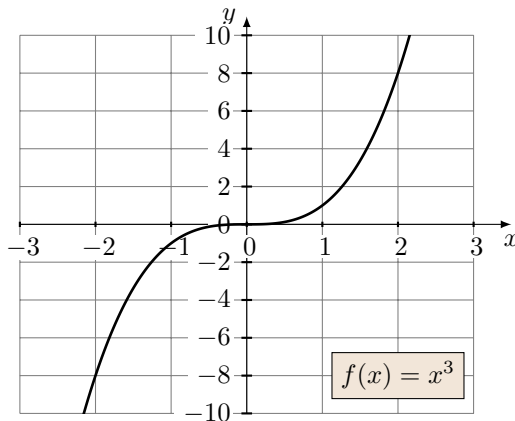


x	$-\infty$	0	$+\infty$
$f(x)$	$+\infty$	0	$+\infty$

Limites

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

- Fonction cube $x \mapsto x^3$

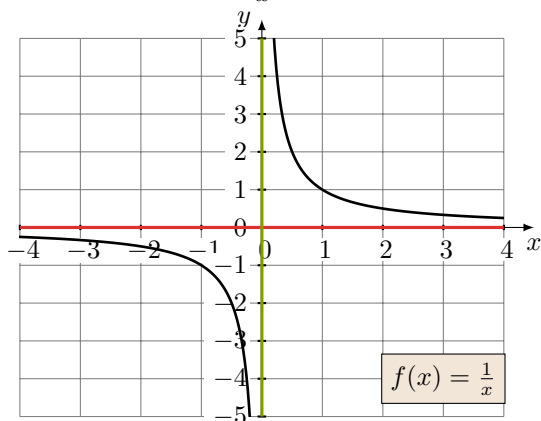


x	$-\infty$	0	$+\infty$
$f(x)$	$-\infty$	0	$+\infty$

Limites

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

- Fonction inverse $x \mapsto \frac{1}{x}$

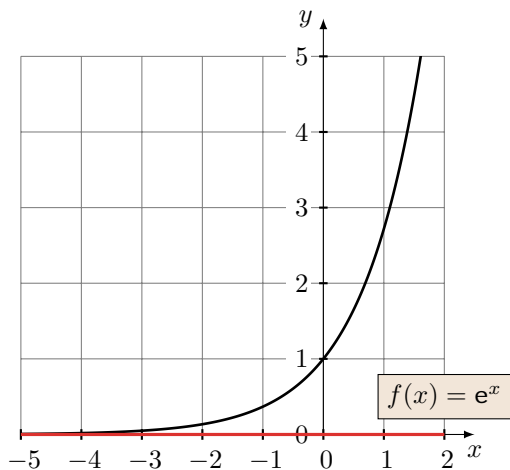


x	$-\infty$	0	$+\infty$
$f(x)$	0	$+\infty$	0

Limites

$$\lim_{x \rightarrow -\infty} \frac{1}{x} = 0 \quad \lim_{x \rightarrow 0^-} \frac{1}{x} = -\infty \quad \lim_{x \rightarrow 0^+} \frac{1}{x} = +\infty \quad \lim_{x \rightarrow +\infty} \frac{1}{x} = 0$$

• Fonction exponentielle $x \mapsto e^x$

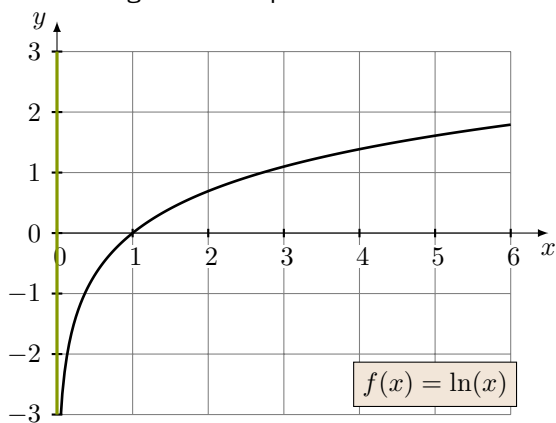


x	$-\infty$	$+\infty$
$f(x)$	0	$+\infty$

Limites

$$\lim_{x \rightarrow -\infty} e^x = 0 \quad \lim_{x \rightarrow +\infty} e^x = +\infty$$

• Fonction logarithme népérien $x \mapsto \ln x$



x	0	$+\infty$
$f(x)$	$-\infty$	$+\infty$

Limites

$$\lim_{\substack{x \rightarrow 0 \\ > 0}} \ln x = -\infty \quad \lim_{x \rightarrow +\infty} \ln x = +\infty$$