

# Limites et Asymptotes

$f(x) = \frac{2x^2 + 5x + 2}{x + 3}$ <p style="text-align: right;">AV <math>\equiv x = -3</math> AO <math>\equiv y = 2x - 1</math></p>	$f(x) = \frac{x^2 + x - 2}{x - x^3}$ <p style="text-align: right;">AV <math>\equiv x = 0</math> AO <math>\equiv y = 2x - 1</math></p>
$f(x) = \frac{1 - 2x}{2x^2 + x - 1}$ <p style="text-align: right;">AV <math>\equiv x = -1</math> <math>\lim_{\frac{1}{2}} f(x) = -\frac{2}{3}</math> AH <math>\equiv y = 0</math></p>	$f(x) = \frac{x^2 + x - 2}{x - x^3}$ <p style="text-align: right;">AV <math>\equiv x = 0</math> AO <math>\equiv y = 2x - 1</math></p>
$f(x) = \frac{x^3 - x}{x^2 + 2x + 1}$ <p style="text-align: right;">AV <math>\equiv x = -1</math> AO <math>\equiv y = x - 2</math></p>	$f(x) = \frac{x^2 + x - 2}{x - x^3}$ <p style="text-align: right;">AV <math>\equiv x = -1</math> AO <math>\equiv y = 2x - 1</math></p>
$f(x) = \frac{2x^2 - 5x - 3}{3 - x}$ <p style="text-align: right;">AO <math>\equiv y = -2x - 1</math></p>	$f(x) = \frac{2x^2 - 3x - 2}{2 - x}$ <p style="text-align: right;">AO <math>\equiv y = -2x - 1</math></p>
$f(x) = \frac{2x + 3}{x^2 + 3x + 2}$ <p style="text-align: right;">AV <math>\equiv x = -1</math> AV <math>\equiv x = -2</math> AH <math>\equiv y = 0</math></p>	$f(x) = \frac{2x^2 - 3x - 2}{2 - x}$ <p style="text-align: right;">AO <math>\equiv y = -2x - 1</math></p>
$f(x) = \frac{3x^2 + 2x - 1}{x^2 - x - 2}$ <p style="text-align: right;">AV <math>\equiv x = 2</math> AH <math>\equiv y = 3</math></p>	$f(x) = \sqrt{x^2 + x - 12} - \sqrt{x^2 - 3x - 10}$ <p style="text-align: right;"><math>\leftarrow, -4] \cup [5, \rightarrow</math> <math>\lim_{-4} f(x) = -3\sqrt{2}</math> <math>\lim_{5} f(x) = 3\sqrt{2}</math> <math>\lim_{\pm\infty} f(x) = \pm 2</math> AH <math>\equiv y = 2</math> à droite AH <math>\equiv y = -2</math> à gauche</p>
$f(x) = \frac{x^2 + 2x - 3}{2x^2 + 3x - 9}$ <p style="text-align: right;">AV <math>\equiv x = 3/2</math></p>	$f(x) = \frac{\sqrt{3x+1} - \sqrt{2x+6}}{x-5}$ <p style="text-align: right;"><math>] -\frac{1}{3}, \rightarrow \setminus \{5\}</math> <math>\lim_{\frac{1}{-3}} f(x) = \frac{\sqrt{3}}{4}</math> <math>\lim_{\frac{1}{5}} f(x) = \frac{1}{8}</math> <math>\lim_{\pm\infty} f(x) = 0</math> AH <math>\equiv y = 0</math></p>
$f(x) = \frac{x^2 + 2x - 3}{2x^2 + 3x - 9}$ <p style="text-align: right;">AV <math>\equiv x = 3/2</math></p>	$f(x) = \frac{\sqrt{3x+1} - \sqrt{2x+6}}{x-5}$ <p style="text-align: right;"><math>] -\frac{1}{3}, \rightarrow \setminus \{5\}</math> <math>\lim_{\frac{1}{-3}} f(x) = \frac{\sqrt{3}}{4}</math> <math>\lim_{\frac{1}{5}} f(x) = \frac{1}{8}</math> <math>\lim_{\pm\infty} f(x) = 0</math> AH <math>\equiv y = 0</math></p>
$f(x) = \frac{x^2 + 2x - 3}{2x^2 + 3x - 9}$ <p style="text-align: right;">AV <math>\equiv x = 3/2</math></p>	$f(x) = \frac{\sqrt{3x+1} - \sqrt{2x+6}}{x-5}$ <p style="text-align: right;"><math>] -\frac{1}{3}, \rightarrow \setminus \{5\}</math> <math>\lim_{\frac{1}{-3}} f(x) = \frac{\sqrt{3}}{4}</math> <math>\lim_{\frac{1}{5}} f(x) = \frac{1}{8}</math> <math>\lim_{\pm\infty} f(x) = 0</math> AH <math>\equiv y = 0</math></p>

$$f(x) = \sqrt{x^2 - 2x - 3} - (x + 1)$$

$\leftarrow, -1] \cup [3, \rightarrow$

$$\lim_{x \rightarrow -1} f(x) = 0$$

$$\lim_{x \rightarrow 3} f(x) = -4$$

$$\lim_{x \rightarrow +\infty} f(x) = -2$$

$$\lim_{x \rightarrow -\infty} f(x) = +\infty$$

AH  $\equiv y = -2$  à droite  
AO  $\equiv y = -2x$  à gauche

$$f(x) = \sqrt{x^2 - 5x - 14} - \sqrt{x^2 + 4x - 5}$$

$\leftarrow, -5] \cup [7, \rightarrow$

$$\lim_{x \rightarrow -5} f(x) = 6$$

$$\lim_{x \rightarrow 7} f(x) = -6\sqrt{2}$$

AH à droite  $\equiv y = -\frac{9}{2}$   
AH à gauche  $\equiv y = \frac{9}{2}$

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

$\left[ \frac{2}{3}, \rightarrow \setminus \{2\} \right.$

$$\lim_{x \rightarrow \frac{2}{3}} f(x) = \frac{\sqrt{6}}{2}$$

$$\lim_{x \rightarrow 2} f(x) = \frac{1}{2}$$

$$\lim_{x \rightarrow +\infty} f(x) = 0$$

AH  $\equiv y = 0$  à droite

$$f(x) = \frac{x^2 - 4}{3x^2 + 5x - 2}$$

AV  $\equiv x = 1/3$

$$\lim_{x \rightarrow \frac{1}{3}^+} f(x) = -\infty$$

$$\lim_{x \rightarrow \frac{1}{3}^-} f(x) = +\infty$$

$$\lim_{x \rightarrow 2} f(x) = \frac{4}{7}$$

$$\lim_{x \rightarrow \pm\infty} f(x) = \frac{1}{3}$$

AH  $\equiv y = 1/3$

$$f(x) = \sqrt{x^2 - 3x - 10} - (x - 2)$$

$\leftarrow, -2] \cup [5, \rightarrow$

$$\lim_{x \rightarrow -2} f(x) = 4$$

$$\lim_{x \rightarrow 5} f(x) = -3$$

$$\lim_{x \rightarrow +\infty} f(x) = \frac{1}{2}$$

$$\lim_{x \rightarrow -\infty} f(x) = +\infty$$

AH  $\equiv y = 1/2$  à droite  
AO  $\equiv y = -2x + 7/2$  à gauche

$$f(x) = \frac{2 - \sqrt{x+3}}{x-1}$$

$[-3, \rightarrow \setminus \{1\}$

$$\lim_{x \rightarrow -3} f(x) = -\frac{1}{2}$$

$$\lim_{x \rightarrow 1} f(x) = -\frac{1}{4}$$

$$\lim_{x \rightarrow +\infty} f(x) = 0$$

AH  $\equiv y = 0$  à droite

$$f(x) = \sqrt{x-2} - \sqrt{x+3}$$

$[2, \rightarrow$

$$\lim_{x \rightarrow 2} f(x) = -\sqrt{5}$$

$$\lim_{x \rightarrow +\infty} f(x) = 0$$

AH  $\equiv y = 0$  à droite

$$f(x) = \sqrt{x^2 - 5x - 14} - \sqrt{x^2 - 2x - 15}$$

$\leftarrow, -3] \cup [7, \rightarrow$

$$\lim_{x \rightarrow -3} f(x) = \sqrt{10}$$

$$\lim_{x \rightarrow 7} f(x) = -2\sqrt{5}$$

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

AH  $\equiv y = -3/2$  à droite  
AH  $\equiv y = 3/2$  à gauche

$$f(x) = \sqrt{4x^2 - 4x - 8} - 2x$$

$\leftarrow, -1] \cup [2, \rightarrow$

$$\lim_{x \rightarrow -1} f(x) = 2$$

$$\lim_{x \rightarrow 2} f(x) = -4$$

AH  $\equiv y = -1$  à droite  
AO  $\equiv y = -4x + 1$  à gauche

$$\lim_{x \rightarrow +\infty} f(x) = -1$$

$$\lim_{x \rightarrow -\infty} f(x) = +\infty$$