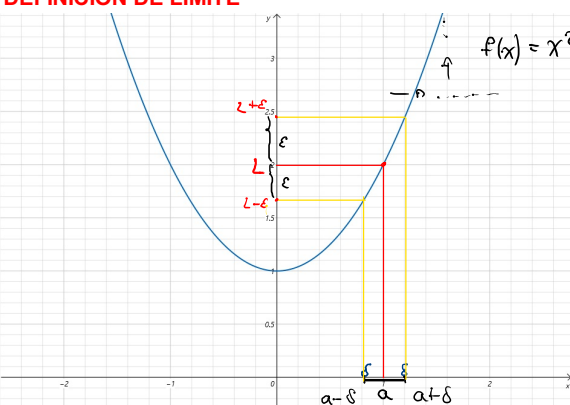


DEFINICIÓN DE LÍMITE



$$f(x) = x^2 + 1$$

$$x = 1$$

$$y = (1)^2 + 1$$

$$y = 2$$

$$x \rightarrow 1 \quad x \rightarrow a$$

$$y \rightarrow ? \quad y \rightarrow ?$$

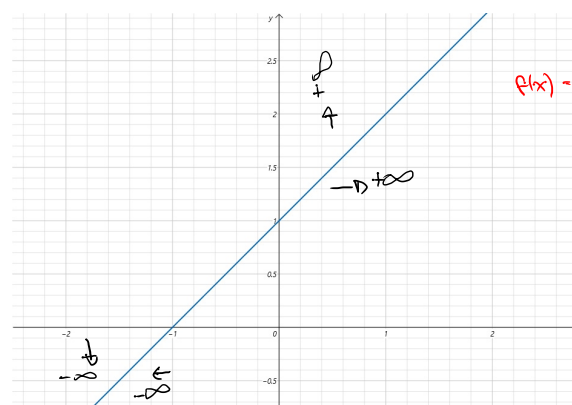
$$\lim_{x \rightarrow a} f(x) = L$$

$$\lim_{x \rightarrow 1} x^2 + 1 = 2$$

x	y
1 = 0,9999	1,99980001 = 2
1 = 1,0001	2,00020001 = 2

$$\lim_{x \rightarrow +\infty} x^2 + 1 = ?$$

$$\lim_{x \rightarrow a} f(x) = L \Leftrightarrow \forall \varepsilon > 0, \exists \delta > 0 : 0 < |x - a| < \delta \Rightarrow |f(x) - L| < \varepsilon$$



$$f(x) = x + 1$$

$$\lim_{x \rightarrow \infty} x + 1 = +\infty$$

x	y
1000	1001
100000	100001
1000000	1000001
\downarrow	\downarrow
$+\infty$	$+\infty$

$$+\infty + 1 = \infty$$

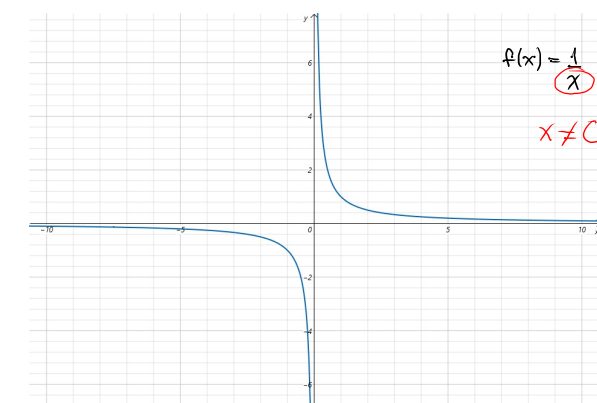
$$\infty + 1000 = \infty$$

$$0 + k = \infty$$

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

x	y
-1000	-999
-100000	-99999
-1000000	-999999
\downarrow	\downarrow
$-\infty$	$-\infty$

$$-\infty + k = -\infty$$



$$f(x) = \frac{1}{x}$$

$$x \neq 0$$

$$y = ?$$

$$x \rightarrow +\infty$$

$$y \rightarrow 0$$

x	y
500	0,002
1000	0,001
100000	0,00001
1000000	0,000001
\downarrow	\downarrow
$+\infty$	0

$$\lim_{x \rightarrow \infty} \frac{1}{x} = 0$$

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

x	y
-500	-0,002
-1000	-0,001
-100000	-0,000001
\downarrow	\downarrow
$-\infty$	0