

PRÁCTICO N° 3

1) a) Graficar la función $f : f(x) = \begin{cases} x-1 \Leftrightarrow x < 0 \\ x+1 \Leftrightarrow x \geq 0 \end{cases}$

b) Indicar el valor de los siguientes límites:

$$\lim_{x \rightarrow 0^+} f(x); \quad \lim_{x \rightarrow 0^-} f(x); \quad \lim_{x \rightarrow 0} f(x); \quad \lim_{x \rightarrow +\infty} f(x); \quad \lim_{x \rightarrow -\infty} f(x)$$

2) a) Graficar la función $g : g(x) = \begin{cases} x^2 \Leftrightarrow x < 1 \\ x \Leftrightarrow 1 \leq x < 2 \\ 4-x \Leftrightarrow x \geq 2 \end{cases}$

b) Indicar el valor de los siguientes límites:

$$\lim_{x \rightarrow 1^+} g(x); \quad \lim_{x \rightarrow 1^-} g(x); \quad \lim_{x \rightarrow 1} g(x); \quad \lim_{x \rightarrow +\infty} g(x); \quad \lim_{x \rightarrow -\infty} g(x); \quad \lim_{x \rightarrow 2^+} g(x); \quad \lim_{x \rightarrow 2^-} g(x); \quad \lim_{x \rightarrow 4} g(x)$$

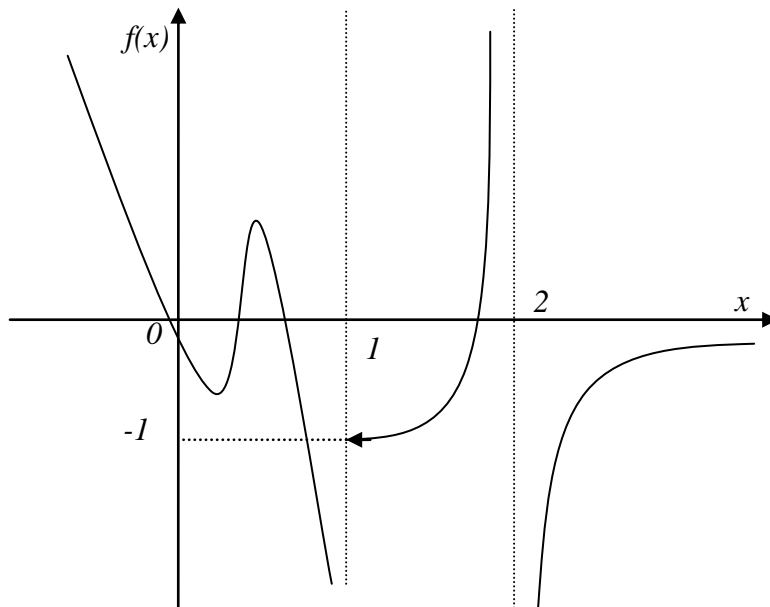
3) a) Graficar la función $h : h(x) = \begin{cases} e^x \Leftrightarrow x \leq 1 \\ L|x-2| \Leftrightarrow x > 1 \end{cases}$

b) Indicar dominio de h .

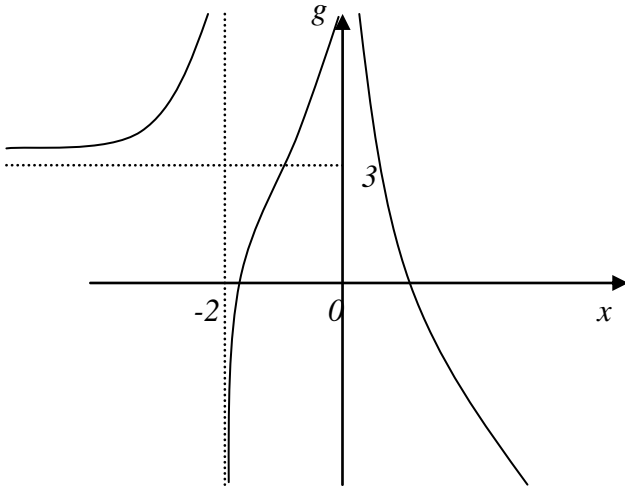
c) Indicar el valor de los siguientes límites:

$$\lim_{x \rightarrow -\infty} h(x); \quad \lim_{x \rightarrow -2} h(x); \quad \lim_{x \rightarrow 1^-} h(x); \quad \lim_{x \rightarrow 1^+} h(x); \quad \lim_{x \rightarrow 3} h(x); \quad \lim_{x \rightarrow +\infty} h(x)$$

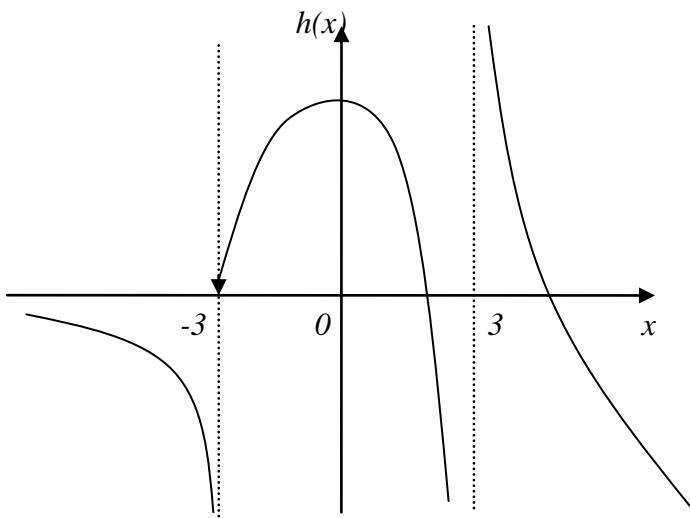
4) Indicar dominio de cada una de las funciones graficadas; y hallar los límites que se indican



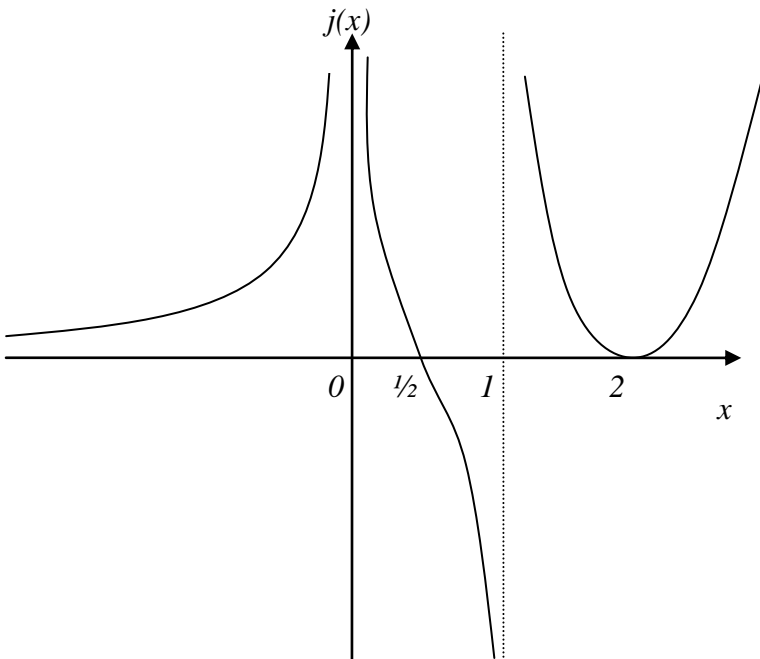
$$\begin{aligned} &\lim_{x \rightarrow 1^+} f(x) \\ &\lim_{x \rightarrow 1^-} f(x) \\ &\lim_{x \rightarrow 2^+} f(x) \\ &\lim_{x \rightarrow 2^-} f(x) \\ &\lim_{x \rightarrow +\infty} f(x) \\ &\lim_{x \rightarrow -\infty} f(x) \end{aligned}$$



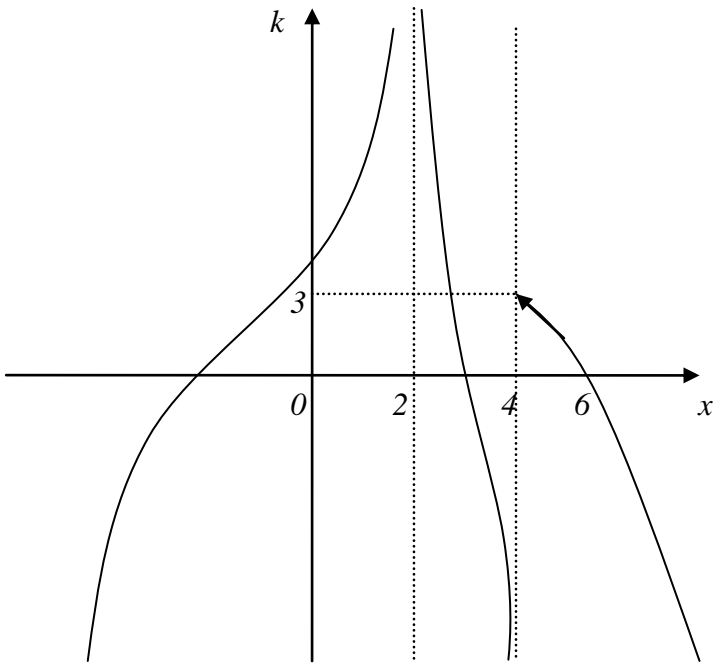
- $\lim_{x \rightarrow -2^-} g(x)$
- $\lim_{x \rightarrow -2^+} g(x)$
- $\lim_{x \rightarrow 0^-} g(x)$
- $\lim_{x \rightarrow 0^+} g(x)$
- $\lim_{x \rightarrow +\infty} g(x)$
- $\lim_{x \rightarrow -\infty} g(x)$



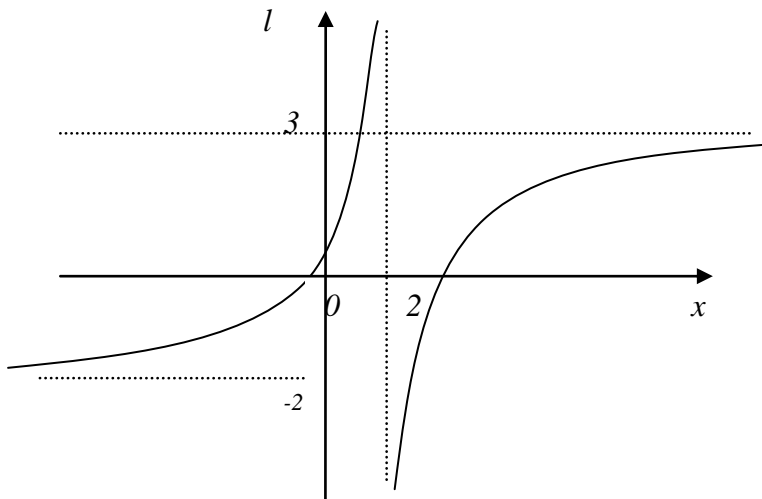
- $\lim_{x \rightarrow -3^-} h(x)$
- $\lim_{x \rightarrow -3^+} h(x)$
- $\lim_{x \rightarrow 3^-} h(x)$
- $\lim_{x \rightarrow 3^+} h(x)$
- $\lim_{x \rightarrow +\infty} h(x)$
- $\lim_{x \rightarrow -\infty} h(x)$



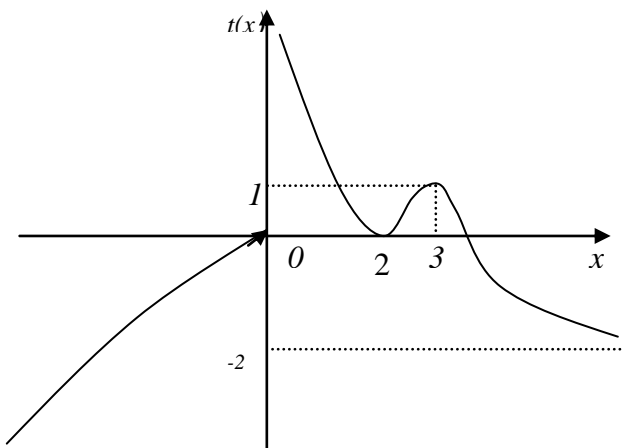
- $\lim_{x \rightarrow 0^+} j(x)$
- $\lim_{x \rightarrow 0^-} j(x)$
- $\lim_{x \rightarrow 1^+} j(x)$
- $\lim_{x \rightarrow 1^-} j(x)$
- $\lim_{x \rightarrow +\infty} j(x)$
- $\lim_{x \rightarrow -\infty} j(x)$



- $\lim_{x \rightarrow 2^+} k(x)$
- $\lim_{x \rightarrow 2^-} k(x)$
- $\lim_{x \rightarrow 4^+} k(x)$
- $\lim_{x \rightarrow 4^-} k(x)$
- $\lim_{x \rightarrow +\infty} k(x)$
- $\lim_{x \rightarrow -\infty} k(x)$



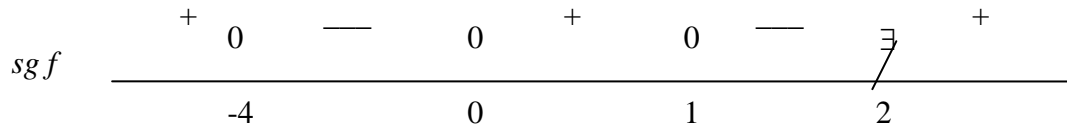
- $\lim_{x \rightarrow 2^+} l(x)$
- $\lim_{x \rightarrow 2^-} l(x)$
- $\lim_{x \rightarrow +\infty} l(x)$
- $\lim_{x \rightarrow -\infty} l(x)$



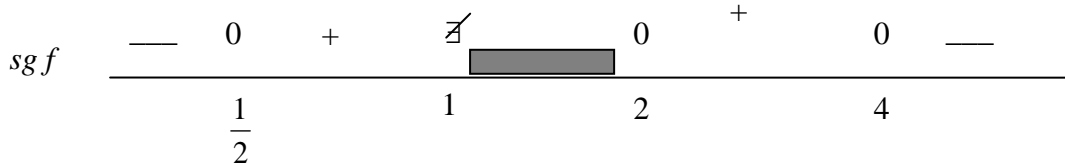
- $\lim_{x \rightarrow 0^+} t(x)$
- $\lim_{x \rightarrow 0^-} t(x)$
- $\lim_{x \rightarrow 3} t(x)$
- $\lim_{x \rightarrow 2} t(x)$
- $\lim_{x \rightarrow +\infty} t(x)$
- $\lim_{x \rightarrow -\infty} t(x)$

5) Representar en cada caso una función f que cumpla con los datos dados:

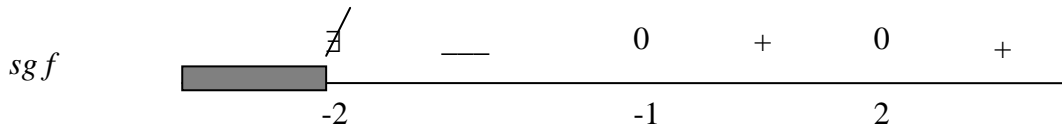
i) $D(f) = \mathbb{R} - \{2\}$; $\lim_{x \rightarrow 2^-} f(x) = -\infty$; $\lim_{x \rightarrow +\infty} f(x) = 0$; $\lim_{x \rightarrow -\infty} f(x) = +\infty$; $\lim_{x \rightarrow 2^+} f(x) = +\infty$



ii) $D(f) = (-\infty, 1) \cup [2, +\infty)$; $\lim_{x \rightarrow 1^-} f(x) = +\infty$; $\lim_{x \rightarrow +\infty} f(x) = -\infty$; $\lim_{x \rightarrow -\infty} f(x) = -2$; $f(0) = -\frac{1}{2}$

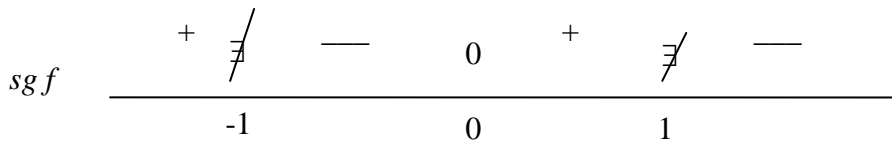


iii) $D(f) = (-2, +\infty)$; $\lim_{x \rightarrow -2^+} f(x) = -\infty$; $\lim_{x \rightarrow +\infty} f(x) = +\infty$; ; $f(0) = 1$



iv) $D(f) = \mathbb{R} - \{-1, 1\}$ $\lim_{x \rightarrow 1^-} f(x) = +\infty$; $\lim_{x \rightarrow -1^+} f(x) = -\infty$; $\lim_{x \rightarrow -1^-} f(x) = 1$;

$\lim_{x \rightarrow +\infty} f(x) = -2$; $\lim_{x \rightarrow -\infty} f(x) = +\infty$; $\lim_{x \rightarrow 1^+} f(x) = -\infty$



v) $D(f) = \mathbb{R} - \{0, 2\}$ $\lim_{x \rightarrow 2^+} f(x) = -\infty$; $\lim_{x \rightarrow 2^-} f(x) = +\infty$; $\lim_{x \rightarrow 0^+} f(x) = +\infty$;

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

