

Práctico N° 7 –Matemática 3°SH/SE

1. Calcular los siguientes límites:

$$\lim_{x \rightarrow -5} \frac{x+5}{x^2} =$$

$$\lim_{x \rightarrow 3} \frac{x+1}{x-4} + x^2 =$$

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

$$\lim_{x \rightarrow 2} \frac{x^2 + 2x - 8}{x-2} =$$

$$\lim_{x \rightarrow -2} \frac{x^2 + 4x + 4}{x^2 + 2x} =$$

$$\lim_{x \rightarrow -1} \frac{x^3 - 4x^2 + x + 6}{x^2 + x} =$$

$$\lim_{x \rightarrow 0} \frac{3x^2 + 2x}{x^2 + x} =$$

$$\lim_{x \rightarrow 0} \frac{3x^2 + x}{x^3 + 4x} =$$

$$\lim_{x \rightarrow 0} L|x+1| =$$

$$\lim_{x \rightarrow +\infty} L|x+3| =$$

$$\lim_{x \rightarrow -\infty} L \left| \frac{x+1}{2} \right| =$$

$$\lim_{x \rightarrow -5} L|x| =$$

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

$$\lim_{x \rightarrow 1} e^{\frac{x-1}{x^2+2x-3}} =$$

$$\lim_{x \rightarrow 0} 4 \cdot e^{\frac{x^2+2x}{4x^2+x}} =$$

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

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

$$\lim_{x \rightarrow +\infty} \frac{13}{x^2} =$$

$$\lim_{x \rightarrow -\infty} \frac{\sqrt[4]{129}}{x^2 + 1} =$$

$$\lim_{x \rightarrow +\infty} \frac{3x^2 + 1}{x^2} =$$

$$\lim_{x \rightarrow +\infty} \frac{3x+1}{x^2} =$$

$$\lim_{x \rightarrow +\infty} \frac{3x^2 + 1}{x} =$$

$$\lim_{x \rightarrow +\infty} \frac{3x^2 + x}{x^3 + 4x} =$$

$$\lim_{x \rightarrow +\infty} \frac{x^2 + 1x + 3}{x + 4} =$$

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

$$\lim_{x \rightarrow +\infty} \frac{2x^2 - 5x + 7}{x+3} - 2x =$$

2. Calcular $\lim_{x \rightarrow \pm\infty} f(x)$

$$\text{siendo } f(x) = \begin{cases} \frac{x^2 - 16}{x - 4} \Leftrightarrow x > 4 \\ -1 + 2x \\ -x^2 + 3x - 5 \Leftrightarrow x \leq 4 \end{cases}$$

3. Calcular los siguientes límites:

$$\lim_{x \rightarrow 0^\pm} \frac{x+3}{x^2 + 2x}$$

$$\lim_{x \rightarrow 3^\pm} \frac{21}{(x-3)}$$

$$\lim_{x \rightarrow -\frac{5}{2}^\pm} \frac{3x+1}{2x+5}$$

$$\lim_{x \rightarrow 0^\pm} \frac{x^4 + 5x^3 + 4x^2}{x^5 - x^3}$$

$$\lim_{x \rightarrow -\infty} \frac{2x+1}{x-5}$$

$$\lim_{x \rightarrow \pm\infty} \frac{x^2 - 3x + 1}{\sqrt{x^4 + x - 5}}$$

$$\lim_{x \rightarrow -\infty} \frac{\sqrt{x^2 + 1}}{5x - 1}$$

$$\lim_{x \rightarrow -\infty} \left(\frac{x^2 - 4}{x - 4} - \frac{x^2 - 6}{x - 6} \right)$$

$$\lim_{x \rightarrow \pm\infty} \frac{|2x^2 - 7| - |5x - 2x^2|}{-x^2 + 3x - 5}$$

$$\lim_{x \rightarrow 0^+} \frac{Lx}{x+3}$$

$$\lim_{x \rightarrow -\infty} \frac{e^x + 1}{L(-x)}$$

$$\lim_{x \rightarrow +\infty} \frac{e^{2x} + 1}{e^x}$$

$$\lim_{x \rightarrow +\infty} \frac{L(x^3)}{L(2x)}$$

4. Deducir dominio, signo, límites infinitos y límites laterales en puntos de no existencia de las siguientes funciones:

$$f : f(x) = \frac{-3}{x+5}$$

$$g : g(x) = \frac{-3x-3}{x}$$

$$h : h(x) = \frac{-3x^2+3}{x+5}$$

$$i : i(x) = \frac{x^2 - 7x + 10}{(x-5)^2}$$

$$j : j(x) = \frac{-2x^2 + x + 1}{-x^2 + 4x - 3}$$

$$h : h(x) = -\frac{-x^2 + 25}{x(x+5)}$$