

**Práctico N° 9 –Matemática 3°SH/SE**

1. Calcular los siguientes límites:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

2. i) Calcular  $\lim_{x \rightarrow \pm\infty} f(x)$  y  $\lim_{x \rightarrow 4^\pm} f(x)$  siendo  $f(x) = \begin{cases} \frac{x^2-16}{x-4} \Leftrightarrow x > 4 \\ x-3 \Leftrightarrow x \leq 4 \end{cases}$

ii) Graficar f.

3. Calcular los siguientes límites:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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