

1. Calcular los siguientes límites:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

2. Calcular  $\lim_{x \rightarrow \pm\infty} f(x)$  siendo  $f(x) = \begin{cases} \frac{x^2-16}{x-4} \Leftrightarrow x > 4 \\ \frac{-1+2x}{-x^2+3x-5} \Leftrightarrow x \leq 4 \end{cases}$

3. Calcular los siguientes límites:

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

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

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

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

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

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

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

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

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

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

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

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

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

$$\lim_{x \rightarrow -5^-} \frac{L(x^2+5x)^3}{L|(x+1)(x+5)|} =$$

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

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

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

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

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

$$j : j(x) = -\frac{-x^2+25}{(x^2-3x-10)(-2x-10)}$$

5. Calcular los siguientes límites:

$$\lim_{x \rightarrow 1} \frac{Lx}{2x-2}$$

$$\lim_{x \rightarrow +\infty} (e^{\sqrt{x}} - 1)(x^2 + 3)$$

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

$$\lim_{x \rightarrow -\infty} (2x-3)e^{\frac{1}{x+4}} - 2x$$

$$\lim_{x \rightarrow +\infty} (L(x+1) - L(x+3)) \cdot (2x+1)$$

$$\lim_{x \rightarrow 0} \frac{L(1+3x)}{2x}$$

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

$$\lim_{x \rightarrow +\infty} \frac{(x^2+1)(e^{\frac{2x}{x^2+1}} - 1)}{4x}$$

$$\lim_{x \rightarrow -\infty} (2x-5)e^{\frac{1}{x+1}} - 2ex$$

$$\lim_{x \rightarrow 0^+} \frac{L(1+\sqrt{x})}{2x}$$

$$\lim_{x \rightarrow +\infty} 2x^2 (e^{\frac{5}{x^2}} - 1)$$

$$\lim_{x \rightarrow +\infty} (x+1)e^{\frac{3}{x-2}} - x$$

$$\lim_{x \rightarrow 0} \frac{L\left(\frac{1+x}{1-x}\right)}{x^2 - x}$$

6. Calcular los siguientes límites:

$$\lim_{x \rightarrow +\infty} \frac{Lx}{x+3}$$

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

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

$$\lim_{x \rightarrow +\infty} \frac{Lx+x}{2x+3}$$

$$\lim_{x \rightarrow +\infty} \frac{x.Lx}{3x+5}$$

$$\lim_{x \rightarrow +\infty} \frac{x.Lx}{e.x + \pi}$$

$$\lim_{x \rightarrow +\infty} \frac{3^{x-2}}{L|x^2+1|}$$

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

$$\lim_{x \rightarrow +\infty} e^{2x-3} - L(x+5) - x^{35}$$

$$\lim_{x \rightarrow +\infty} x.Lx - 5x$$

$$\lim_{x \rightarrow +\infty} x.Lx - 5x^2$$

$$\lim_{x \rightarrow -\infty} x.e^x$$

$$\lim_{x \rightarrow +\infty} \frac{x^3 + 2x + 5}{2x^2 + 3} \cdot e^{-x^2-3x}$$