



## ANALISIS MATEMATICO

### Trabajo Práctico 3

1. Representen las siguientes funciones. Realicen el análisis de cada una (Df, If, C+, C-, Ic, Id). Luego calculen los límites en los puntos indicados.

$$a. f(x) = \begin{cases} |x| - 1 & \text{si } x \leq -1 \\ 2x + 2 & \text{si } x > -1 \end{cases}$$

$$x = -1; x = 0; x = 4$$

$$b. f(x) = \begin{cases} x^2 - 9 & \text{si } x < -2 \\ -|x| & \text{si } x \geq -2 \end{cases}$$

$$x = -3; x = -2; x = 10$$

$$c. f(x) = \begin{cases} 3x - 1 & \text{si } x \leq -1 \\ x^2 + 5x & \text{si } -1 < x < 0 \\ |x + 2| - 3 & \text{si } x \geq 0 \end{cases}$$

$$x = -7; x = -1; x = -0,5; x = 0$$

$$d. f(x) = \begin{cases} -x^2 + 4 & \text{si } x < 0 \\ |x| + 2 & \text{si } 0 \leq x \leq 3 \\ 5 & \text{si } x < 3 \end{cases}$$

$$x = \frac{3}{2}; x = 0; x = 3; x = 7$$

### 2. Resuelvan

$$a. \lim_{x \rightarrow 0} \frac{5x + x^2}{x^3 + 2x} =$$

$$b. \lim_{x \rightarrow 3} \frac{x^2 - 6x + 9}{x - 3} =$$

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

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





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

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

$$g. \lim_{x \rightarrow 0} \frac{x^4+2x+3x^3}{\frac{1}{2}x} =$$

$$h. \lim_{x \rightarrow 5} \frac{x^2-4x-5}{x^3-3x^2-10x} =$$

$$i. \lim_{x \rightarrow -4} \frac{x^3+x^2-10x+8}{x^2-16} =$$

$$j. \lim_{x \rightarrow 3} \frac{\sqrt{x}-\sqrt{3}}{x-3} =$$

$$k. \lim_{x \rightarrow 1} \frac{1-x}{\sqrt{x}-1} =$$

$$l. \lim_{x \rightarrow 0} \frac{2x}{\sqrt{1+x}-1} =$$

$$m. \lim_{x \rightarrow 2} \frac{3-\sqrt{x^2+5}}{4-x^2} =$$

$$n. \lim_{x \rightarrow 3} \frac{\sqrt{x}-\sqrt{3}}{x^3-4x^2+3x} =$$

$$o. \lim_{x \rightarrow 1} \frac{\sqrt{x+3}-2}{\sqrt{x}-1} =$$

$$p. \lim_{x \rightarrow 2} \frac{\sqrt{x+2}-2}{\sqrt{x+1}-3} =$$

$$q. \lim_{x \rightarrow 5} \frac{\sqrt{5}-\sqrt{x}}{\sqrt{x+11}-4} =$$

$$r. \lim_{x \rightarrow \infty} \frac{4x^2-2x-1}{3x^3+5x^2-7} =$$

$$s. \lim_{x \rightarrow \infty} \frac{\frac{1}{2}x+2x^2-4}{8x^2+3} =$$





$$t. \lim_{x \rightarrow \infty} \frac{5x^4 - x^3 + x^6}{x^4 + 2 - \frac{3}{5}x}$$

$$u. \lim_{x \rightarrow \infty} \frac{x^2 - 4}{25 - x^2} =$$

$$v. \lim_{x \rightarrow \infty} \frac{-x^3 - 2x^4 - x^2 + 13}{-1 + 7x^2 + 8x^4} =$$

$$w. \lim_{x \rightarrow \infty} \frac{8 - x^3}{7x^3 + 5x^4 - 4x^5} =$$

