

Bloque I. Función real de variable real
Tema 2 Límites y Continuidad

Ejercicios propuestos

Calcular los siguientes límites:

I.2-1 $\lim_{x \rightarrow 2} \frac{x^3 - 8}{x - 2}$

I.2-2 $\lim_{x \rightarrow 4} \frac{x^2 - 2x - 8}{x^2 + 2x - 24}$

I.2-3 $\lim_{x \rightarrow 3} \frac{x^3 - 3x^2}{x^2 - 9}$

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

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

I.2-6 $\lim_{x \rightarrow 4} \left(\frac{1}{x} - \frac{1}{4} \right) \left(\frac{1}{x - 4} \right)$

I.2-7 $\lim_{x \rightarrow \infty} \left(\sqrt{x^2 + x + 1} - ax \right)$

I.2-8 $\lim_{n \rightarrow \infty} \left(n - \sqrt{n^2 - 1} \right)$

I.2-9 $\lim_{x \rightarrow \infty} \left(\sqrt{x + 1} - \sqrt{x} \right)$

I.2-10 $\lim_{x \rightarrow 0} \frac{1}{x} \left[\sqrt{1 + x} - \sqrt{1 - x} \right]$

I.2-11 $\lim_{x \rightarrow \infty} \left(\sqrt{x^2 + \sqrt{x^4 + 1}} - x\sqrt{2} \right)$

I.2-12 $\lim_{n \rightarrow \infty} \frac{\sqrt[3]{7n^4 + 2n^3 - n} + \sqrt[3]{3n^4 + 5n^2 - 1}}{\sqrt[3]{n^4 + 3n^3 + n^2 - 2n + 3}}$

I.2-13 $\lim_{x \rightarrow 3} \left(\frac{1}{x - 3} - \frac{5}{x^2 - x - 6} \right)$

I.2-14 $\lim_{x \rightarrow 16} \frac{\sqrt[4]{x} - 2}{\sqrt{x} - 4}$

I.2-15 $\lim_{x \rightarrow 1} \left(\frac{1}{2(1 - \sqrt{x})} - \frac{1}{3(1 - \sqrt[3]{x})} \right)$

$$\text{I.2-16 } \lim_{x \rightarrow 0} \frac{\sqrt{1-2x-x^2} - (1+x)}{x}$$

$$\text{I.2-17 } \lim_{x \rightarrow 2} \frac{(x^2 - x - 2)^{20}}{(x^3 + 12x + 16)^{10}}$$

$$\text{I.2-18 } \lim_{x \rightarrow 0} \left(\frac{1+x}{2+x} \right)^{\frac{1-\sqrt{x}}{1-x}}$$

$$\text{I.2-19 } \lim_{x \rightarrow 1} \left(\frac{1+x}{2+x} \right)^{\frac{1-\sqrt{x}}{1-x}}$$

$$\text{I.2-20 } \lim_{x \rightarrow \infty} \left(\frac{1+x}{2+x} \right)^{\frac{1-\sqrt{x}}{1-x}}$$

$$\text{I.2-21 } \lim_{x \rightarrow \infty} \left(\frac{x^2 - 1}{x^2 + 1} \right)^{\frac{x-1}{x+1}}$$

$$\text{I.2-22 } \lim_{n \rightarrow \infty} \left(\frac{3n+5}{3n-1} \right)^{\frac{n}{5}}$$

$$\text{I.2-23 } \lim_{n \rightarrow \infty} \left(\frac{2n-1}{2n+5} \right)^n$$

$$\text{I.2-24 } \lim_{x \rightarrow 1} \frac{\ln x}{x^2 - 1}$$

$$\text{I.2-25 } \lim_{x \rightarrow 0} x\sqrt{1-2x}$$

$$\text{I.2-26 } \lim_{x \rightarrow -\infty} (\sqrt{x^2 + x} - x)$$

$$\text{I.2-27 } \lim_{x \rightarrow \infty} (\sqrt{x^2 + x} - x)$$

$$\text{I.2-28 } \lim_{x \rightarrow 8} \frac{\sqrt{9+2x} - 5}{\sqrt[3]{x} - 2}$$

$$\text{I.2-29 } \lim_{x \rightarrow 0} \frac{\sqrt[3]{8+3x-x^2} - 2}{x+x^2}$$

$$\text{I.2-30 } \lim_{x \rightarrow 8} \frac{\sqrt{1-x} - 3}{2 + \sqrt[3]{x}}$$