



MATEMÁTICAS

2º BACHILLERATO
TEMA 3: Límites

LÍMITES

1) $\lim_{x \rightarrow +\infty} \frac{x^3 - 2x^2 + 4x}{-5x - 2x^3}$ (Sol: $-1/2$)

a) $\lim_{x \rightarrow 1} \frac{x^3 + 2x^2 - x - 2}{x^2 + 3x + 2}$ (Sol: 0)

b) $\lim_{x \rightarrow +\infty} \frac{x^2 - 2x + 8}{2x^2 - 5}$ (Sol: $1/2$)

c) $\lim_{x \rightarrow +\infty} \frac{3x^2 - x + 1}{\sqrt{x^6 + 1}}$ (Sol: 0)

d) $\lim_{x \rightarrow 1} \frac{5x}{x - 1}$ (No existe)

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

f) $\lim_{x \rightarrow 0} \frac{\sqrt{1+x} - \sqrt{1-x}}{x}$ (Sol: 1)

g) $\lim_{x \rightarrow +\infty} (\sqrt{x+4} - \sqrt{x-4})$ (Sol: 0)

h) $\lim_{x \rightarrow 2} \frac{x^2 - 4}{\sqrt{7+x} - 3}$ (Sol: 24)

i) $\lim_{x \rightarrow +\infty} (8x - \sqrt{16x^2 - 3x})$ (Sol: $+\infty$)

j) $\lim_{x \rightarrow 1} \frac{x^3 + 2x^2 - x - 2}{x^3 + x^2 - 2x}$ (Sol: 2)

k) $\lim_{x \rightarrow 3} \frac{x^3 - 2x^2 - 2x - 3}{x^3 - 4x^2 + 4x - 3}$ (Sol: $13/7$)

l) $\lim_{x \rightarrow 1} \frac{x^2 - 1}{\sqrt{x+3} - 2}$ (Sol: 8)

m) $\lim_{x \rightarrow +\infty} \left(\frac{x^3 + 1}{x^2} - \frac{x^4 + x + 1}{x^3 + x} \right)$ (Sol: 0)

n) $\lim_{x \rightarrow \infty} (\sqrt{4x^2 + x} - 2x)$ (Sol: $1/4$)

o) $\lim_{x \rightarrow +\infty} \frac{1 + 2x}{\sqrt{1 + x^2}}$ (Sol: 2)

p) $\lim_{x \rightarrow 2} \frac{\sqrt{x} - \sqrt{2}}{x^2 - 4}$ (Sol: $\sqrt{2}/16$)

q) $\lim_{x \rightarrow 0} \frac{5x}{\sqrt{1-x} - 1}$ (Sol: -10)

r) $\lim_{x \rightarrow 1} \frac{x^3 - 6x^2 + 11x - 6}{x^3 + 4x^2 + x - 6}$ (Sol: $1/6$)

s) $\lim_{x \rightarrow a} \frac{x^2 - ax}{x^2 + ax - 2a^2}$ (Sol: $1/3$)

t) $\lim_{x \rightarrow 0} \frac{x + x^2}{2 - \sqrt{x+4}}$ (Sol: -4)

u) $\lim_{x \rightarrow 1} \frac{x^3 + x^2 + 5}{x^3 + x - 3}$ (Sol: -7)

v) $\lim_{x \rightarrow +\infty} (\sqrt{4x^2 - 5} - (2x - 3))$ (Sol: 3)

w) $\lim_{x \rightarrow +\infty} (\sqrt{4x^2 + 4x + 2} - \sqrt{4x^2 - 5x + 2})$ (Sol: $9/4$)

x) $\lim_{x \rightarrow 0} \frac{5x}{\sqrt{1-x} - 1}$ (Sol: -10)

y) $\lim_{x \rightarrow \infty} \frac{4x^4 - 3x}{1 - 3x^3}$ (Sol: $+\infty$)

z) $\lim_{x \rightarrow \infty} \frac{x}{\sqrt{2x^2 + 1} + \sqrt{x^2 - 1}}$ (Sol: $\sqrt{2} - 1$)

aa) $\lim_{x \rightarrow \infty} \sqrt[3]{\frac{-27x^2 + 1}{2 + x^2}}$ (Sol: -3)

bb) $\lim_{x \rightarrow 3} \frac{\sqrt{x+1} - 2}{x - 3}$ (Sol: $1/4$)

cc) $\lim_{x \rightarrow \infty} (\sqrt{x^2 - 1} - \sqrt{x^2 + 5})$ (Sol: 0)

dd) $\lim_{x \rightarrow \infty} (\sqrt{x^2 - 2x} - x)$ (Sol: -1)

ee) $\lim_{x \rightarrow \infty} \left(\frac{10x - 3}{5x + 3} \right)^{\frac{-x^2 + 3}{2x}}$ (Sol: 0)

ff) $\lim_{x \rightarrow 0} \frac{\sqrt{x+9} - 3}{\sqrt{x+16} - 4}$ (Sol: $4/3$)

gg) $\lim_{x \rightarrow 1} \left(\frac{x-3}{2x-5} \right)^{\frac{x^2+1}{x^2-4x+4}}$ (Sol: $4/9$)

hh) $\lim_{x \rightarrow \infty} \left(\frac{2x+3}{3x-1} \right)^{\frac{4x+1}{x}}$ (Sol: $16/81$)

ii) $\lim_{x \rightarrow \infty} \left(\frac{2x+3}{2x-1} \right)^{\frac{3x^2}{x-1}}$ (Sol: e^6)

jj) $\lim_{x \rightarrow 2} (x-1)^{\frac{3}{x-2}}$ (Sol: e^3)

kk) $\lim_{x \rightarrow 1} \left(\frac{x^3 + 1}{x^2 + 1} \right)^{\frac{3}{x-1}}$ (Sol: $e^{3/2}$)

ll) $\lim_{x \rightarrow 1} \left(\frac{5x-2}{4x+3} \right)^{2x}$ (Sol: e^{-2})

mm) $\lim_{x \rightarrow \infty} \left(\frac{2x^2 + 3x}{2x^2 - 5} \right)^{2x+1}$ (Sol: e^3)