

# LÍMITES DE FUNCIONES 1º BACHILLERATO

Calcula los siguientes límites de funciones:

$$1. \lim_{x \rightarrow +\infty} \frac{\sqrt[3]{x^3 + 2x} - 1}{x + 1}$$

$$2. \lim_{x \rightarrow +\infty} \frac{\sqrt[3]{x^2 + x}}{x + 1}$$

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

$$4. \lim_{x \rightarrow +\infty} \left( \frac{x^3 + 3}{x^2 + 1} \right)^{\frac{2x}{x+1}}$$

$$5. \lim_{x \rightarrow +\infty} \left( \frac{1 - 3x}{4 - 3x} \right)^{x-2}$$

$$6. \lim_{x \rightarrow +\infty} \left( \frac{1 - x^2}{x + 1} \right)^{\frac{x+5}{x}}$$

$$7. \lim_{x \rightarrow 0} \left( \frac{x^4 - 3x^3 + 2x^2}{x^2 - x} \right)$$

$$8. \lim_{x \rightarrow +\infty} \left( \frac{3x + 5}{2} - \frac{x^2 - 2}{x} \right)$$

$$9. \lim_{x \rightarrow +\infty} \left( \frac{x^2 - 3x + 1}{x^2 + x - 1} \right)^{2x}$$

$$10. \lim_{x \rightarrow -\infty} \frac{\sqrt{x^2 - 5x + 3}}{3x - 2}$$

$$11. \lim_{x \rightarrow +\infty} (\sqrt{x^2 - x} - x)$$

$$12. \lim_{x \rightarrow +\infty} (x^3 + 2)^{-7x+55}$$

$$13. \lim_{x \rightarrow +\infty} \frac{-5x}{\sqrt{3x^2 - 2x} + 2x}$$

$$14. \lim_{x \rightarrow +\infty} \sqrt[2x]{\left( \frac{x^2 + x}{x^2 + 3} \right)^{4x^2}}$$

$$15. \lim_{x \rightarrow +\infty} \frac{\sqrt{x^2 + 2} - \sqrt{4x^2 - 5}}{7x - 1 + \sqrt{9x^2 + 1}}$$

$$16. \lim_{x \rightarrow 1} \frac{2x^3 - 3x^2 + 1}{3x^3 - 8x^2 + 7x - 2}$$

$$17. \lim_{x \rightarrow +\infty} \left( \frac{x^3}{2x^2 + 1} - \frac{x}{2} \right)$$

$$18. \lim_{x \rightarrow +\infty} \frac{1}{\sqrt{x^2 + 5}} \frac{\sqrt{3x^2 + 7}}{x}$$

$$19. \lim_{x \rightarrow -\infty} \frac{\sqrt{x^3 + 5x + 3}}{x^2 - 2x}$$

$$20. \lim_{x \rightarrow +\infty} \left( \frac{1}{x + 1} \right) (3x^2 + 7)$$

$$21. \lim_{x \rightarrow +\infty} \left( \frac{5x + 1}{5x + 6} \right)^{\frac{3x}{2}}$$

$$22. \lim_{x \rightarrow +\infty} \left( \sqrt{4x^2 - 1} - (2x - 1) \right)$$

$$23. \lim_{x \rightarrow +\infty} \sqrt[3]{\left( \frac{2 - 3x}{1 - x} \right)^{\frac{x-1}{x+3}}}$$

$$24. \lim_{x \rightarrow +\infty} \sqrt[x]{\left( \frac{2x + 4}{2x - 1} \right)^{\frac{x^2+1}{2}}}$$

$$25. \lim_{x \rightarrow +\infty} \left( \frac{x^3 - 5}{x^3} \right)^{2x^2-1}$$

$$26. \lim_{x \rightarrow +\infty} \left( \sqrt{x + \sqrt{x}} - \sqrt{x - \sqrt{x}} \right)$$

$$27. \lim_{x \rightarrow +\infty} \frac{5x - 2}{\sqrt[3]{x^3 - 2x} - \sqrt{x^2 + 1}}$$

$$28. \lim_{x \rightarrow -\infty} \left( \frac{3x^3 + 5}{x + 2} - \frac{4x^3 - x}{x - 2} \right)$$

$$29. \lim_{x \rightarrow -1} \left( \frac{3x^3 + x - 2}{x^3 + x^2 - x - 1} \right)$$

$$30. \lim_{x \rightarrow +\infty} \left( 1 + \frac{2}{x} \right)^{3x}$$

$$31. \lim_{x \rightarrow -\infty} 3^x$$

$$32. \lim_{x \rightarrow +\infty} \left( \frac{3x + 3}{x + 2} \right)^{1-x}$$

$$33. \lim_{x \rightarrow +\infty} \left( \frac{8x^3 - 1}{2x^3 + x + 1} \right)^{\frac{x}{2x-1}}$$

$$34. \lim_{x \rightarrow +\infty} \left( \frac{6x + 1}{5x - 2} \right)^{x^2}$$

$$35. \lim_{x \rightarrow +\infty} \left( \sqrt{x^2 + 2x} - x \right)^x$$

$$36. \lim_{x \rightarrow +\infty} \left( \frac{2x^2 + 5}{3x^2 + 1} \right)^{x^2}$$