MATEMATICAS. BC2 TEMA 7: Límites

1 $\lim_{x\to-\infty}\left(\sqrt{x^2+3x}-\sqrt{x^2+x}\right)$ 2 $\lim_{x\to\infty}\left(\frac{x^2}{x-1}-\frac{x^2+1}{x-2}\right)$ 3 $\lim_{x\to\infty}\frac{7x-1}{\sqrt[3]{5x^3+4x-2}}$

4 $\lim_{x\to\infty}\frac{\sqrt{4x^4+x^2+1}}{x^2+1}$ 5 $\lim_{x\to\infty}\frac{(x^2+1)^2-3x^2+3}{x^3-5}$ 6 $\lim_{x\to\infty}\frac{\log(x^8-5)}{x^2}$

7 $\lim_{x\to\infty}\frac{3^x-1}{\sqrt{x^7+x^5}}$ 8 $\lim_{x\to\infty}\frac{x^7+x^5+x^3}{\left(\frac{1}{2}\right)^x}$ 9 $\lim_{x\to0}\frac{2}{3+4^{\frac{1}{x}}}$

10 $\lim_{x\to\infty}\left(\sqrt{18x^2+1}\,\frac{1}{\sqrt{32x^2-3}}\right)$ 11 $\lim_{x\to0}\frac{(1+x)^2-1}{x}$ 12 $\lim_{x\to3}\frac{x^2-9}{x^2-5x+6}$

13 $\lim_{x\to3}\frac{\sqrt{x+1}-2}{x-3}$ 14 $\lim_{x\to\infty}\left(1+\frac{1}{x+2}\right)^{x-1}$ 15 $\lim_{x\to\infty}\left(1-\frac{2}{3x}\right)^x$

16 $\lim_{x\to\infty}\left(\frac{2n^2}{3n+1}\right)^{\frac{3n^2+2}{5n-3}}$ 17 $\lim_{x\to\infty}\left(\frac{2n^2}{3n+1}\right)^{\frac{-3n^2+2}{5n-3}}$ 18 $\lim_{x\to\infty}\left(\frac{2n^2}{3n+1}\right)^{\frac{-3n^2+2}{5n^2-3}}$

19 $\lim_{x\to\infty}\left(\frac{2n^2}{3n^3+1}\right)^{\frac{3n^2+2}{5n-3}}$ 20 $\lim_{x\to\infty}\left(\frac{2n^2}{3n^3+1}\right)^{\frac{-3n^2+2}{5n-3}}$ 21 $\lim_{x\to\infty}\left(\frac{2n^2}{3n^2+1}\right)^{\frac{-3n+2}{5n^2-3}}$

22 $\lim_{x\to\infty}\left(\frac{2n^2}{3n^2+1}\right)^{\frac{-3n^2+2}{5n-3}}$ 23 $\lim_{x\to\infty}\left(\frac{2n^2}{3n^2+1}\right)^{\frac{3n^2+2}{5n-3}}$

SOLUCIONES:

1. $\lim_{x\to\pm\infty}\left(\sqrt{x^2+3x}-\sqrt{x^2+x}\right) \to 1$

2. $\lim_{x\to\pm\infty}\left(\frac{x^2}{x-1}-\frac{x^2+1}{x-2}\right) \to -1$

3. $\lim_{x\to\pm\infty}\left(\frac{7x-1}{\sqrt[3]{5x^9+4x-2}}\right) \to \frac{7\cdot\sqrt[3]{5^8}}{5}$

4. $\lim_{x\to\pm\infty}\left(\frac{\sqrt{4x^4+x^2+1}}{x^2+1}\right) \to 2$

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

6. $\lim_{x\to+\infty}\frac{\log(x^8-5)}{x^2} \to 0$

7. $\lim_{x\to\pm\infty}\left(\frac{3^x-1}{\sqrt{x^7+x^5}}\right) \to +\infty$

8. $\lim_{x\to+\infty}\frac{x^7+x^5+x^3}{\left(\frac{1}{2}\right)^x} \to +\infty$

9. $\lim_{x\to+\infty}\frac{2}{3+4^{\frac{1}{x}}} \to 0.5$ =

10. $\lim_{x\to+\infty}\left(\sqrt{18x^2+1}\cdot\frac{1}{\sqrt{32x^2-3}}\right) \to \frac{3}{4}$

11. $\lim_{x\to0}\frac{(1+x)^2-1}{x} \to 2$

12. $\lim_{x\to3}\frac{x^2-9}{x^2-5x+6} \to 6$

13. $\lim_{x\to3}\frac{\sqrt{x+1}-2}{x-3} \to \frac{1}{4}$

14. $\lim_{x\to+\infty}\left(1+\frac{1}{x+2}\right)^{x-1} \to e$

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

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

17) $\lim_{x\to+\infty}\frac{2x^2}{3x+1}^{\frac{-3x^2+2}{5x-3}} \to 0$

18.I $\lim_{x\to+\infty}\left(\frac{2x^2}{3x+1}\right)^{\frac{-3x^2+2}{5x^2-3}} \to 0$

19.I $\lim_{x\to\pm\infty}\left(\frac{2x^2}{3x^3+1}\right)^{\frac{3x^2+2}{5x-3}} \to 0$

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

21.I $\lim_{x\to+\infty}\left(\frac{2x^2}{3x^2+1}\right)^{\frac{-3x+2}{5x^2-3}} \to 1$ =

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

23.I $\lim_{x\to+\infty}\left(\frac{2x^2}{3x^2+1}\right)^{\frac{3x^2+2}{5x-3}} \to 0$