Ejercicios propuestos

Calcular los siguientes límites:

4.2-1 $\lim_{x\to 2}\dfrac{x^3-8}{x-2}$

4.2-2 $\lim_{x\to 4}\dfrac{x^2-2x-8}{x^2+2x-24}$

4.2-3 $\lim_{x\to 3}\dfrac{x^3-3x^2}{x^2-9}$

4.2-4 $\lim_{x\to 3}\dfrac{\sqrt{x^2-2x+6}-\sqrt{x^2+2x-6}}{x^2-4x+3}$

4.2-5 $\lim_{x\to 1}\dfrac{\sqrt{x^2+1}-\sqrt{2}}{x-1}$

4.2-6 $\lim_{x\to 4}\left(\dfrac{1}{x}-\dfrac{1}{4}\right)\left(\dfrac{1}{x-4}\right)$

4.2-7 $\lim_{x\to\infty}\left(\sqrt{x^2+x+1}-ax\right)$

4.2-8 $\lim_{n\to\infty}\left(n-\sqrt{n^2-1}\right)$

4.2-9 $\lim_{x\to\infty}\left(\sqrt{x+1}-\sqrt{x}\right)$

4.2-10 $\lim_{x\to 0}\dfrac{1}{x}\left[\sqrt{1+x}-\sqrt{1-x}\right]$

4.2-11 $\lim_{x\to\infty}\left(\sqrt{x^2+\sqrt{x^4+1}}-x\sqrt{2}\right)$

4.2-12 $\lim_{n\to\infty}\dfrac{\sqrt[3]{7n^4+2n^3-n}+\sqrt[3]{3n^4+5n^2-1}}{\sqrt[3]{n^4+3n^3+n^2-2n+3}}$

4.2-13 $\lim_{x\to 3}\left(\dfrac{1}{x-3}-\dfrac{5}{x^2-x-6}\right)$

4.2-14 $\lim_{x\to 16}\dfrac{\sqrt[4]{x}-2}{\sqrt{x}-4}$

4.2-15 $\lim_{x\to 1}\left(\dfrac{1}{2\left(1-\sqrt{x}\right)}-\dfrac{1}{3\left(1-\sqrt[3]{x}\right)}\right)$

4.2-16 $\lim_{x\to 0}\dfrac{\sqrt{1-2x-x^2}-(1+x)}{x}$

4.2-17 $\lim_{x\to 2}\dfrac{\left(x^2-x-2\right)^{20}}{\left(x^3+12x+16\right)^{10}}$

4.2-18 $\lim_{x\to 0}\left(\dfrac{1+x}{2+x}\right)^{\frac{1-\sqrt{x}}{1-x}}$

4.2-19 $\lim_{x\to 1}\left(\dfrac{1+x}{2+x}\right)^{\frac{1-\sqrt{x}}{1-x}}$

4.2-20 $\lim_{x\to \infty}\left(\dfrac{1+x}{2+x}\right)^{\frac{1-\sqrt{x}}{1-x}}$

4.2-21 $\lim_{x\to \infty}\left(\dfrac{x^2-1}{x^2+1}\right)^{\frac{x-1}{x+1}}$

4.2-22 $\lim_{n\to \infty}\left(\dfrac{3n+5}{3n-1}\right)^{\frac{n}{5}}$

4.2-23 $\lim_{n\to \infty}\left(\dfrac{2n-1}{2n+5}\right)^{n}$

4.2-24 $\lim_{x\to 1}\dfrac{\ln x}{x^2-1}$

4.2-25 $\lim_{x\to 0}\sqrt[x]{1-2x}$

4.2-26 $\lim_{x\to -\infty}\left(\sqrt{x^2+x}-x\right)$

4.2-27 $\lim_{x\to \infty}\left(\sqrt{x^2+x}-x\right)$

4.2-28 $\lim_{x\to 8}\dfrac{\sqrt{9+2x}-5}{\sqrt[3]{x}-2}$

4.2-29 $\lim_{x\to 0}\dfrac{\sqrt[3]{8+3x-x^2}-2}{x+x^2}$

4.2-30 $\lim_{x\to -8}\dfrac{\sqrt{1-x}-3}{2+\sqrt[3]{x}}$