Calcula los siguientes límites

$$\lim_{n\to\infty}\left(\frac{n^2-n-7}{n^2+n+1}\right)^{4n+3}$$

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

$$\lim_{n\to\infty}\frac{\sqrt[3]{n^4+3n-1}}{n+2}$$

$$\lim_{n\to\infty}\left(\frac{1}{n}\right)^{\frac{1}{n}}$$

$$\lim_{n\to\infty}\left(\sqrt{\frac{4-n}{4-2n}}\right)^{\frac{2n-1}{3n+1}}$$

$$\lim_{n\to\infty}\sqrt{\frac{n^2-n+3}{n^2+1}}^{\frac{2}{n^2}}$$

$$\lim_{n\to\infty}\left(\sqrt{n^2-3n-5}-\sqrt{n^2-5n+8}\right)^{\left(\frac{n+5}{n+3}\right)^n}$$

$$\lim_{n\to\infty}\frac{\ln(n)}{n}$$

$$\lim_{n\to\infty}\left(\sqrt{\frac{2n+3}{2n}}\right)^{\frac{1}{\sqrt{2n+3}-\sqrt{2n}}}$$

$$\lim_{n\to\infty}\sqrt[n]{\frac{n}{n^2+1}}$$

$$\lim_{n\to\infty}\left(\frac{n}{n^2+1}+\frac{n}{n^2+2}+\cdots+\frac{n}{n^2+n}\right)$$

$$\lim_{n\to\infty}\frac{\ln(1)+\ln(2)+\cdots+\ln(n)}{n\ln(n)}$$

$$\lim_{n\to\infty}\frac{1^2+2^2+\cdots+n^2}{n^3}$$

$$\lim_{n\to\infty}\frac{\mathrm{a}+2a+3a+\cdots+na}{(n+a)^2}$$

Calcula a y b para que

$$\lim_{n\to\infty}\left(\frac{n+a}{n+1}\right)^{2n+3}=\lim_{n\to\infty}\left(\frac{n+3}{n+2}\right)^{bn+4}$$