

Zadání

Vypočtete limity:

1. $\lim_{n \rightarrow \infty} \frac{\sqrt{n+4} - \sqrt{n-2}}{n+2 - \sqrt[3]{n^3+2}} \cdot \frac{\sqrt{n+1} + \sqrt{n+2}}{\sqrt{9n^2+n-3n}}$,
2. $\lim_{n \rightarrow \infty} \frac{2^{2n} + n^2 \log n^2 + n^3 \cdot e^n}{n^4 \ln n^3 + 2n^2 \cdot e^{n+1} + 2^{2n+1}} \cdot \left(1 + \frac{1}{n}\right)^{n \ln 3 + 7}$,
3. $\lim_{n \rightarrow \infty} \frac{\ln(1 + \sqrt[3]{n} + \sqrt[5]{n})}{\ln(n^2 + n^4 + n^6)} \cdot \frac{(2+n)(3+n)(4+n)(5+n)(6+n)}{(\sqrt[3]{n^6 + 4n^3 + 2} + \sqrt{n^4 + 2n^2 + 3})n^3}$,
4. $\lim_{n \rightarrow \infty} \frac{\sqrt{n^2 + 2n} - n}{\sqrt[n]{n^n + 2n^n + 3n^n}} \cdot \frac{(n+2)! - (n+1)!}{(n+1)! + n!}$.