

Calcolare i seguenti limiti:

$$\lim_{n \rightarrow +\infty} n^2 \sin\left(\frac{2\pi}{(n+5)^2}\right) \quad (2\pi)$$

$$\lim_{x \rightarrow 1} \frac{x^3 - 6x^2 + 11x - 6}{x^2 - 3x + 2} \quad (-2)$$

$$\lim_{n \rightarrow +\infty} \frac{n}{\log(n^6 + \sqrt{n})} \quad (+\infty)$$

$$\lim_{n \rightarrow +\infty} \frac{n^{5/2} + n^2(\log n)^3 - n(\log n)^5}{\log(\log(2n)) + 3n^{1/2}(n^4 + \log n)^{1/2}} \quad \left(\frac{1}{3}\right)$$

$$\lim_{n \rightarrow +\infty} \frac{\sqrt{n^4 + 3n^3} - \sqrt{n^4 - 2n^3}}{n} \quad \left(\frac{5}{2}\right)$$

$$\lim_{x \rightarrow -\infty} \left(\sqrt{x^2 + 8x + 3} - \sqrt{x^2 + 4x + 3} \right) \quad (-2)$$

$$\lim_{n \rightarrow +\infty} \frac{3n^2 + (\cos n)n \log n}{(3+n)\sqrt{n^2+1}} \quad (3)$$

$$\lim_{x \rightarrow +\infty} \frac{(1 + e^{\frac{2x}{3}})^{3/2} + 3^x}{(1 + 2^x)^3 + e^x} \quad (0)$$

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

$$\lim_{n \rightarrow +\infty} \frac{(n+1)^{n+1}}{(n+2)^n} \sin \frac{1}{n} \quad \left(\frac{1}{e}\right)$$

$$\lim_{x \rightarrow +\infty} \left(1 + \sin^2 \frac{1}{x} \right)^x \quad (1)$$

$$\lim_{n \rightarrow +\infty} \left(\cos \left(\frac{1}{n} \right) \right)^n \quad (1)$$

$$\lim_{n \rightarrow +\infty} \left(\cos \left(\frac{1}{n} \right) \right)^{n^2} \quad (e^{-1/2})$$

$$\lim_{n \rightarrow +\infty} \left(\alpha - \frac{3}{n} \right)^{\log n} \quad (\alpha > 0)$$

$$\begin{cases} 0 & \text{se } 0 < \alpha < 1 \\ 1 & \text{se } \alpha = 1 \\ +\infty & \text{se } \alpha > 1 \end{cases}$$

$$\lim_{n \rightarrow +\infty} (n^{\sqrt{n}} - 2^n)$$

$$(-\infty)$$

$$\lim_{x \rightarrow +\infty} \left(\sqrt[4]{x+1} - \sqrt[4]{x+5} \right)$$

$$(0)$$

$$\lim_{n \rightarrow +\infty} \sqrt[n]{2^n + e^n + n^2}$$

$$(e)$$

$$\lim_{n \rightarrow +\infty} \frac{n(\log n)^3 + e^{(\log n)^2}}{1 + (\log n)^n}$$

$$(0)$$

$$\lim_{n \rightarrow +\infty} (n^{\sqrt{n}} - (\sqrt{n})^n)$$

$$(-\infty)$$

$$\lim_{n \rightarrow +\infty} \left(\sqrt[n]{\alpha} - 1 \right) (n+1) \quad (\alpha > 0)$$

$$(\log \alpha)$$

$$\lim_{n \rightarrow +\infty} \frac{n}{\log n} (n^{1/n} - 1)$$

$$(1)$$

$$\lim_{n \rightarrow +\infty} n \left(1 - \cos \frac{1}{\sqrt{n}} + e^{-n} \right)$$

$$\left(\frac{1}{2} \right)$$

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

$$\left(\frac{3}{2} \right)$$

$$\lim_{n \rightarrow +\infty} \left(\cos \frac{1}{n^2} \right)^{\sqrt{4n^8 + 7n + 3}}$$

$$\left(\frac{1}{e} \right)$$

$$\lim_{n \rightarrow +\infty} \left(\frac{1}{3} \log(n^2+1) - \log \sqrt[3]{n^2+2} \right) \sin n$$

$$(0)$$

$$\lim_{n \rightarrow +\infty} \left(\frac{\log(2n) + 1}{\log(2n) - 5} \right)^{e^n}$$

$$(+\infty)$$

$$\lim_{n \rightarrow +\infty} \left(\frac{4 - 3 \log n}{2 - 3 \log n} \right)^{e^{n+2}}$$

$$(0)$$

