

Calcolare i seguenti limiti:

$$\lim_{x \rightarrow +\infty} \frac{x^2}{(\log x)^{1000} - x \sin(x^{500}) + x^2} \quad (-1)$$

$$\lim_{n \rightarrow +\infty} \frac{n \sin n + 5}{n^2 + \sqrt{n}} \quad (0)$$

$$\lim_{x \rightarrow 1} \frac{x-1}{\sqrt{x}-1} \quad (2)$$

$$\lim_{x \rightarrow 3} \frac{x^2 - 2x - 3}{x^2 - 6x + 9} \quad (\cancel{A})$$

$$\lim_{x \rightarrow 0} \frac{\cos(x^3) - 1}{\sin(x^5)} \quad (0)$$

$$\lim_{t \rightarrow +\infty} \frac{\sqrt{t^6 + 1} \left(\cos \frac{2}{t} - 1 \right)}{t} \quad (-2)$$

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

$$\lim_{x \rightarrow 0} \frac{2 - 2\cos x}{\sin x^2 - 3\sin x - x^2} \quad (0)$$

$$\lim_{x \rightarrow 0} \frac{\log_a(x+2) - \log_a 2}{x} \quad (a > 0, a \neq 1) \quad \left(\frac{1}{2 \log a} \right)$$

$$\lim_{t \rightarrow +\infty} \frac{t^3 \log \left(1 + \frac{3}{t^2} \right)}{\sqrt{t^2 + 1}} \quad (3)$$

$$\lim_{x \rightarrow 0} \frac{\log(1 + \operatorname{arctg} x)^x}{e - e^{\cos^+ x}} \quad \left(\frac{1}{2e} \right)$$

$$\lim_{x \rightarrow 0^+} (1 + \sin(x^\alpha))^{1/x} \quad (\alpha > 0)$$

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

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

$$(+\infty)$$

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

$$(0)$$

$$\lim_{x \rightarrow +\infty} \sin\left(\frac{1}{x^{4/7}}\right) \left(\log\left(1 + \frac{e}{x^{2/7}}\right)\right)^{-2}$$

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

$$\lim_{x \rightarrow +\infty} \sqrt{x} \sqrt{\left(1 + \frac{1}{x}\right)^{1/4} - 1}$$

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

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

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

$$\lim_{x \rightarrow 0} \frac{|4^x - 1 - (\log 2) \sin x|}{x^3 - |x|^2}$$

$$(-\infty)$$

$$\lim_{n \rightarrow +\infty} \frac{n^2 \log n}{2^{\sqrt{n}}}$$

$$(0)$$

$$\lim_{n \rightarrow +\infty} e^n \sin\left(\frac{1}{n^{100}}\right)$$

$$(+\infty)$$

$$\lim_{n \rightarrow +\infty} \frac{n(1 - \cos \frac{1}{n})}{\sin \frac{1}{n}}$$

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

$$\lim_{n \rightarrow +\infty} \frac{n+1}{\sqrt{n}+2} \operatorname{tg} \frac{1}{\sqrt{n}}$$

$$(1)$$

$$\lim_{n \rightarrow +\infty} \operatorname{tg} \frac{\pi n^2}{2n^2 - 5n}$$

$$(-\infty)$$

$$\lim_{n \rightarrow +\infty} (3n+2) \sin\left(\frac{\pi n - 5}{n+7}\right)$$

$$(3(7\pi+5))$$

