

Corso di Laurea in Informatica Applicata
Analisi Matematica
Limiti importanti

$$\lim_{x \rightarrow 0^+} \log_a x = \begin{cases} -\infty & \text{se } a > 1 \\ +\infty & \text{se } 0 < a < 1 \end{cases}$$

$$\lim_{x \rightarrow +\infty} \log_a x = \begin{cases} +\infty & \text{se } a > 1 \\ -\infty & \text{se } 0 < a < 1 \end{cases}$$

$$\lim_{x \rightarrow +\infty} a^x = \begin{cases} +\infty & \text{se } a > 1 \\ 0 & \text{se } 0 < a < 1 \end{cases}$$

$$\lim_{x \rightarrow -\infty} a^x = \begin{cases} 0 & \text{se } a > 1 \\ +\infty & \text{se } 0 < a < 1 \end{cases}$$

$$\lim_{x \rightarrow +\infty} \left(1 + \frac{\alpha}{x}\right)^x = \lim_{x \rightarrow +\infty} \left(1 + \frac{\alpha}{x}\right)^x = e^\alpha, \quad \forall \alpha \in \mathbb{R}$$

$$\lim_{x \rightarrow 0^+} x^\alpha \log x = 0, \quad \forall \alpha > 0; \quad \lim_{x \rightarrow +\infty} \frac{\log x}{x^\beta} = 0, \quad \forall \beta > 0$$

$$\lim_{x \rightarrow +\infty} \sqrt[x]{a} = 1; \quad \lim_{x \rightarrow +\infty} \sqrt[x]{x}^\beta = 1, \quad \forall \beta > 0$$

$$\lim_{x \rightarrow 0^+} x^x = 1; \quad \lim_{x \rightarrow +\infty} \frac{x^\alpha}{e^x} = 0, \quad \forall \alpha \in \mathbb{R}$$

$$\lim_{x \rightarrow 0} \frac{\sin x}{x} = 1; \quad \lim_{x \rightarrow 0} \frac{\tan x}{x} = 1$$

$$\lim_{x \rightarrow 0} \frac{\arctan x}{x} = 1; \quad \lim_{x \rightarrow 0} \frac{\arcsin x}{x} = 1$$

$$\lim_{x \rightarrow 0} \frac{1 - \cos x}{x^2} = \frac{1}{2}; \quad \lim_{x \rightarrow 0} \frac{a^x - 1}{x} = \log a$$

$$\lim_{x \rightarrow 0} \frac{\log_a(x+1)}{x} = \frac{1}{\log a} = \log_a e$$