

Scrivere il significato (= la definizione) delle seguenti uguaglianze. I simboli  $f$ ,  $x_0$ ,  $\ell$ , quando sono presenti, denotano rispettivamente una funzione reale definita in un insieme  $A \subseteq \mathbf{R}$ , un punto di accumulazione per  $A$ , un numero reale.

$$\lim_{x \rightarrow x_0} f(x) = \ell \quad \forall \varepsilon > 0 \exists \delta > 0 : |f(x) - \ell| < \varepsilon \quad \forall x \in (]x_0 - \delta, x_0 + \delta[ \setminus \{x_0\}) \cap A$$

$$\lim_{x \rightarrow x_0} f(x) = 0 \quad \forall \varepsilon > 0 \exists \delta > 0 : |f(x)| < \varepsilon \quad \forall x \in (]x_0 - \delta, x_0 + \delta[ \setminus \{x_0\}) \cap A$$

$$\lim_{x \rightarrow 0} f(x) = \ell \quad \forall \varepsilon > 0 \exists \delta > 0 : |f(x) - \ell| < \varepsilon \quad \forall x \in (]-\delta, \delta[ \setminus \{0\}) \cap A$$

$$\lim_{x \rightarrow 0} f(x) = 0 \quad \forall \varepsilon > 0 \exists \delta > 0 : |f(x)| < \varepsilon \quad \forall x \in (]-\delta, \delta[ \setminus \{0\}) \cap A$$

$$\lim_{x \rightarrow x_0} |f(x)| = \ell \quad \forall \varepsilon > 0 \exists \delta > 0 : ||f(x)| - \ell| < \varepsilon \quad \forall x \in (]x_0 - \delta, x_0 + \delta[ \setminus \{x_0\}) \cap A$$

$$\lim_{x \rightarrow x_0} |f(x)| = 0 \quad \forall \varepsilon > 0 \exists \delta > 0 : |f(x)| < \varepsilon \quad \forall x \in (]x_0 - \delta, x_0 + \delta[ \setminus \{x_0\}) \cap A$$

$$\lim_{x \rightarrow 0} |f(x)| = \ell \quad \forall \varepsilon > 0 \exists \delta > 0 : ||f(x)| - \ell| < \varepsilon \quad \forall x \in (]-\delta, \delta[ \setminus \{0\}) \cap A$$

$$\lim_{x \rightarrow 0} |f(x)| = 0 \quad \forall \varepsilon > 0 \exists \delta > 0 : |f(x)| < \varepsilon \quad \forall x \in (]-\delta, \delta[ \setminus \{0\}) \cap A$$

$$\lim_{x \rightarrow 0} \operatorname{sen} x = 0 \quad \forall \varepsilon > 0 \exists \delta > 0 : |\operatorname{sen} x| < \varepsilon \quad \forall x \in ]-\delta, \delta[ \setminus \{0\}$$

$$\lim_{x \rightarrow 0} \cos x = 1 \quad \forall \varepsilon > 0 \exists \delta > 0 : |\cos x - 1| < \varepsilon \quad \forall x \in ]-\delta, \delta[ \setminus \{0\}$$

$$\lim_{x \rightarrow \frac{\pi}{6}} \cos x = \frac{\sqrt{3}}{2} \quad \forall \varepsilon > 0 \exists \delta > 0 : \left| \cos x - \frac{\sqrt{3}}{2} \right| < \varepsilon \quad \forall x \in \left] \frac{\pi}{6} - \delta, \frac{\pi}{6} + \delta \right[ \setminus \left\{ \frac{\pi}{6} \right\}$$

$$\lim_{x \rightarrow 0} e^x = 1 \quad \forall \varepsilon > 0 \exists \delta > 0 : |e^x - 1| < \varepsilon \quad \forall x \in ]-\delta, \delta[ \setminus \{0\}$$

$$\lim_{x \rightarrow 1} \operatorname{arcsen} x = \frac{\pi}{2} \quad \forall \varepsilon > 0 \exists \delta > 0 : \left| \operatorname{arcsen} x - \frac{\pi}{2} \right| < \varepsilon \quad \forall x \in ]1 - \delta, 1[$$

$$\lim_{x \rightarrow -1} \operatorname{arccos} x = \pi \quad \forall \varepsilon > 0 \exists \delta > 0 : |\operatorname{arccos} x - \pi| < \varepsilon \quad \forall x \in ]-1, -1 + \delta[$$

$$\lim_{x \rightarrow 1} \operatorname{arctg} x = \frac{\pi}{4} \quad \forall \varepsilon > 0 \exists \delta > 0 : \left| \operatorname{arctg} x - \frac{\pi}{4} \right| < \varepsilon \quad \forall x \in ]1 - \delta, 1 + \delta[ \setminus \{1\}$$

$$\lim_{x \rightarrow 0} x^2 = 0 \quad \forall \varepsilon > 0 \exists \delta > 0 : x^2 < \varepsilon \quad \forall x \in ]-\delta, \delta[ \setminus \{0\}$$

$$\lim_{x \rightarrow 1} \log x = 0 \quad \forall \varepsilon > 0 \exists \delta > 0 : |\log x| < \varepsilon \quad \forall x \in ]1 - \delta, 1 + \delta[ \setminus \{1\}$$

$$\lim_{x \rightarrow 1} |\log x| = 0 \quad \forall \varepsilon > 0 \exists \delta > 0 : |\log x| < \varepsilon \quad \forall x \in ]1 - \delta, 1 + \delta[ \setminus \{1\}$$

$$\lim_{x \rightarrow 0} |\operatorname{sen} x| = 0 \quad \forall \varepsilon > 0 \exists \delta > 0 : |\operatorname{sen} x| < \varepsilon \quad \forall x \in ]-\delta, \delta[ \setminus \{0\}$$