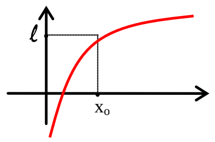
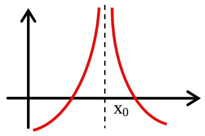
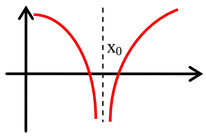
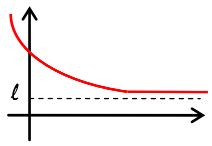
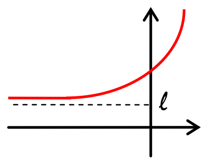
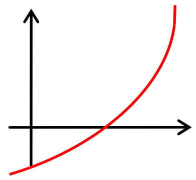
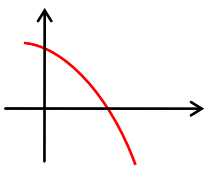
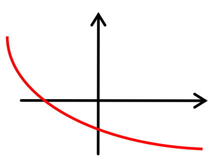
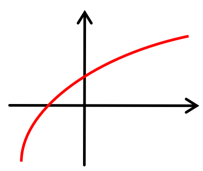
Tutte le definizioni di limite di una funzione:

topologica, algebrica, mista

Data una funzione $y = f(x)$ sia D il suo dominio e sia $\boldsymbol{x_0}$ un punto di accumulazione per il dominio

$\lim\limits_{x \to x_0} f(x) = l$		$\forall J_l \; \exists I_{x_0} : \forall x \in I_{x_0} \cap D - \{x_0\} \Rightarrow f(x) \in J_l$ $\forall \varepsilon > 0 \; \exists \delta > 0 : \forall x \in D : 0 \neq \|x - x_0\| < \delta \Rightarrow \|f(x) - l\| < \varepsilon$ $\forall \varepsilon > 0 \; \exists I_{x_0} : \forall x \in I_{x_0} \cap D - \{x_0\} \Rightarrow \|f(x) - l\| < \varepsilon$
$\lim\limits_{x \to x_0} f(x) = +\infty$		$\forall J_{+\infty} \; \exists I_{x_0} : \forall x \in I_{x_0} \cap D - \{x_0\} \Rightarrow f(x) \in J_{+\infty}$ $\forall M > 0 \; \exists \delta > 0 : \forall x \in D : 0 \neq \|x - x_0\| < \delta \Rightarrow f(x) > M$ $\forall M > 0 \; \exists I_{x_0} : \forall x \in I_{x_0} \cap D - \{x_0\} \Rightarrow f(x) > M$
$\lim\limits_{x \to x_0} f(x) = -\infty$		$\forall J_{-\infty} \; \exists I_{x_0} : \forall x \in I_{x_0} \cap D - \{x_0\} \Rightarrow f(x) \in J_{-\infty}$ $\forall M > 0 \; \exists \delta > 0 : \forall x \in D : 0 \neq \|x - x_0\| < \delta \Rightarrow f(x) < -M$ $\forall M > 0 \; \exists I_{x_0} : \forall x \in I_{x_0} \cap D - \{x_0\} \Rightarrow f(x) < -M$
$\lim\limits_{x \to +\infty} f(x) = l$		$\forall J_l \; \exists I_{+\infty} : \forall x \in I_{+\infty} \cap D \Rightarrow f(x) \in J_l$ $\forall \varepsilon > 0 \; \exists N > 0 : \forall x \in D : x > N \Rightarrow \|f(x) - l\| < \varepsilon$ $\forall \varepsilon > 0 \; \exists I_{+\infty} : \forall x \in I_{+\infty} \cap D \Rightarrow \|f(x) - l\| < \varepsilon$
$\lim\limits_{x \to -\infty} f(x) = l$		$\forall J_l \; \exists I_{-\infty} : \forall x \in I_{-\infty} \cap D \Rightarrow f(x) \in J_l$ $\forall \varepsilon > 0 \; \exists N > 0 : \forall x \in D : x < -N \Rightarrow \|f(x) - l\| < \varepsilon$ $\forall \varepsilon > 0 \; \exists I_{-\infty} : \forall x \in I_{-\infty} \cap D \Rightarrow \|f(x) - l\| < \varepsilon$
$\lim\limits_{x \to +\infty} f(x) = +\infty$		$\forall J_{+\infty} \; \exists I_{+\infty} : \forall x \in I_{+\infty} \cap D \Rightarrow f(x) \in J_{+\infty}$ $\forall M > 0 \; \exists N > 0 : \forall x \in D : x > N \Rightarrow f(x) > M$ $\forall M > 0 \; \exists I_{+\infty} : \forall x \in I_{+\infty} \cap D \Rightarrow f(x) > M$
$\lim\limits_{x \to +\infty} f(x) = -\infty$		$\forall J_{-\infty} \; \exists I_{+\infty} : \forall x \in I_{+\infty} \cap D \Rightarrow f(x) \in J_{-\infty}$ $\forall M > 0 \; \exists N > 0 : \forall x \in D : x > N \Rightarrow f(x) < -M$ $\forall M > 0 \; \exists I_{+\infty} : \forall x \in I_{+\infty} \cap D \Rightarrow f(x) < -M$
$\lim\limits_{x \to -\infty} f(x) = +\infty$		$\forall J_{+\infty} \; \exists I_{-\infty} : \forall x \in I_{-\infty} \cap D \Rightarrow f(x) \in J_{+\infty}$ $\forall M > 0 \; \exists N > 0 : \forall x \in D : x < -N \Rightarrow f(x) > M$ $\forall M > 0 \; \exists I_{-\infty} : \forall x \in I_{-\infty} \cap D \Rightarrow f(x) > M$
$\lim\limits_{x \to -\infty} f(x) = -\infty$		$\forall J_{-\infty} \; \exists I_{-\infty} : \forall x \in I_{-\infty} \cap D \Rightarrow f(x) \in J_{-\infty}$ $\forall M > 0 \; \exists N > 0 : \forall x \in D : x < -N \Rightarrow f(x) < -M$ $\forall M > 0 \; \exists I_{-\infty} : \forall x \in I_{-\infty} \cap D \Rightarrow f(x) < -M$