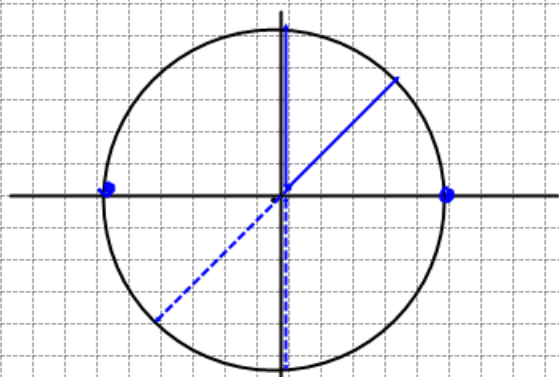


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$$(f(x)) y = \frac{\cos 2x}{\operatorname{tg} x - 1} \quad D_f = \left\{ x \in \mathbb{R} \mid \begin{cases} \operatorname{tg} x \neq 1 \\ \cos x \neq 0 \end{cases} \right\} =$$

$$= \left\{ x \in \mathbb{R} \mid \begin{cases} x \neq \frac{\pi}{4} + k\pi \\ x \neq \frac{3\pi}{4} + k\pi \end{cases} \right\} = \left[0, \frac{\pi}{4} + k\pi \right) \cup \left(\frac{\pi}{4} + k\pi, \frac{3\pi}{4} + k\pi \right) \cup \left(\frac{3\pi}{4} + k\pi, \pi + k\pi \right]$$



$$f\left(\frac{\pi}{4}\right) = \left[\frac{\cos^2 \frac{\pi}{4}}{\operatorname{tg} \frac{\pi}{4} - 1} = \frac{\cos \frac{\pi}{2}}{1 - 1} = \frac{0}{0} \right]$$

$$\lim_{x \rightarrow \frac{\pi}{4}^-} f(x) = \lim_{x \rightarrow \frac{\pi}{4}^-} \frac{\cos 2x}{\operatorname{tg} x - 1} = \left[\frac{0}{0} \right]_{F.I.}$$

$$= \lim_{x \rightarrow \frac{\pi}{4}^+} \frac{\cos^2 x - \sin^2 x}{\frac{\sin x - \cos x}{\cos x}} = \lim_{x \rightarrow \frac{\pi}{4}^+} \frac{(\cancel{\cos x} - \cancel{\sin x})(\cos x + \sin x)}{-(\cancel{\cos x} - \cancel{\sin x}) \cos x}$$

$$= -2 \frac{\sqrt{2}}{2} \left(\frac{\sqrt{2}}{2} \right) = -1$$

discontinuità di

3^a specie $f\left(\frac{\pi}{4}\right) \nexists$
e $\lim_{x \rightarrow \frac{\pi}{4}^+} f(x) = -1$.