$$\lim_{x\to 3^+} \frac{x^2-5x+6}{(x-3)^2} = +\infty$$

$\forall M>0 \ \exists \ I_M(+\infty)$ e cor $\exists \ I_\delta(3^+)$ /

$\forall x \in I_\delta(3^+)$ si ha $f(x)>M$

$$\frac{x^2-5x+6}{(x-3)^2}>M$$

$$\frac{x^2-5x+6-M(x-3)^2}{(x-3)^2}>0$$

$$\frac{x^2-5x+6-Mx^2-9M+6Mx}{(x-3)^2}>0$$

$$\frac{x^2(1-M)+x(6M-5)+6-9M}{(x-3)^2}>0$$

$N>0$ 　　　　se $M>1$

$x^2(1-M)+x(6M-5)+6-9M>0$ 　　　　$1-M<0$

$$x_{1/2}=\frac{-6M+5\pm\sqrt{(6M-5)^2-4(1-M)(6-9M)}}{2(1-M)(6-9M)}$$

$$x_{1/2}=\frac{-6M+5\pm\sqrt{\cancel{36M^2}+25-\cancel{60M}-24+\cancel{36M}+\cancel{24M}-\cancel{36M^2}}}{2(1-M)(6-9M)}=$$

$$x_{1/2}=\frac{-6M+5\pm 1}{2(1-M)(6-9M)}= \begin{cases} x_1=\dfrac{-6M+4}{2(1-M)(6-9M)} \\ x_2=\dfrac{-6M+6}{2(1-M)(6-9M)} \end{cases}$$

$$x_1=\frac{\cancel{2}\cancel{(-3M+2)}}{\cancel{6}\,3(1-M)\cancel{(2-3M)}}=\frac{1}{3(1-M)} \quad -0,037$$

$$x_2=\frac{\cancel{6(1-M)}}{\cancel{6(1-M)}(2-3M)}=\frac{1}{2-3M} \quad -0,0357$$

$$x_1<x<x_2 \Longleftrightarrow \frac{1}{3(1-M)}<x<\frac{1}{2-3M}$$

$$+3-3+\frac{1}{3(1-M)}<x<3-3+\frac{1}{2-3M}$$

$$f_1(M)-3<x<f_2(M)+3$$

$$\frac{9-9M+1}{3(1-M)}-3<x<\frac{-6+9M}{2-3M}+3$$

$$\frac{9-9m+1}{3(1-m)}-3<x<\frac{-6+9m}{2-3m}+3$$

$$\frac{10-9m}{3(1-m)}-3<x<\frac{-3\cancel{(2-3m)}}{\cancel{2-3m}}+3$$

$$\frac{10-9m}{3(1-m)}-3<x<0$$

intorno dx di 3

$$F(x) = \frac{\cos 2x}{tg(x) - 1} \qquad D_F = \left\{ \forall x \in \mathbb{R} \,/\, \begin{cases} tg(x) - 1 \neq 0 \\ x \neq \frac{\pi}{2} + k\pi \end{cases} \right\}$$

$$D_F = \left\{ \begin{cases} tg(x) \neq 1 \\ x \neq \frac{\pi}{2} + k\pi \end{cases} \right\}$$

$$D_F = \left\{ \forall x \in \mathbb{R} \,/\, \begin{cases} x \neq \frac{\pi}{4} + k\pi \\ x \neq \frac{\pi}{2} + k\pi \end{cases} \right\}$$

$$\lim_{x \to \frac{\pi}{4}^-} \frac{\cos 2x}{tg(x) - 1} = \left[\frac{0^+}{0^-} \right] \quad FI$$

$$\lim_{x \to \frac{\pi}{4}^-} \frac{\cos 2x}{tg(x) - 1} \cdot \frac{tg(x) + 1}{tg(x) + 1} =$$

$$\lim_{x \to \frac{\pi}{4}^-} \cos 2x \left(\cos^2 x\right)\left(tg(x) + 1\right) = \left[0^+ \left(\frac{1}{2}\right)(2) \right] = 0^+$$

$$\lim_{x \to \frac{\pi}{4}^+} \frac{\cos 2x}{tg(x) - 1}$$