



$$y = \text{sen } 2x$$

$$y = \text{sen } n \pi$$

$$\lim_{h \rightarrow 0} \frac{\text{sen}(x+h) - \text{sen } x}{h}$$

$$\begin{matrix} x & 1 \\ x^2 & 2x \end{matrix}$$

$$\begin{matrix} n \cos n x \\ x^n \\ n x^{n-1} \end{matrix}$$

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Dominio e punti singolari, asintoti.

$$f(x) = \frac{x^2 - 2|x|}{x^2 - 4}$$

$$f(x) = \begin{cases} \frac{x^2 - 2x}{x^2 - 4} & \text{se } x \geq 0 \\ \frac{x^2 + 2x}{x^2 - 4} & \text{se } x < 0 \end{cases} \quad \Delta_{(f)} = (-\infty; -2) \cup (-2; 2) \cup (2; +\infty)$$

$$\lim_{x \rightarrow -2^-} \frac{x^2 - 2|x|}{x^2 - 4} = \lim_{x \rightarrow -2^-} \frac{x^2 + 2x}{x^2 - 4} = \left[\frac{0}{0} \right]_{F.I.}$$

$$= \lim_{x \rightarrow -2^-} \frac{x(x+2)}{(x-2)(x+2)} = \frac{1}{2}$$

$$\lim_{x \rightarrow -2^+} \frac{x^2 - 2|x|}{x^2 - 4} = \lim_{x \rightarrow -2^+} \frac{x^2 + 2x}{x^2 - 4} = \left[\frac{0}{0} \right]_{F.I.}$$

$$= \lim_{x \rightarrow -2^+} \frac{x(x+2)}{(x-2)(x+2)} = \frac{1}{2}$$

$$f(x) = \begin{cases} \frac{x^2 - 2|x|}{x^2 - 4} & \text{per } x \neq \pm 2 \\ \frac{1}{2} & \text{per } x = \pm 2 \end{cases}$$

$$\lim_{x \rightarrow 2^+} \frac{x^2 - 2|x|}{x^2 - 4} = \lim_{x \rightarrow 2^+} \frac{x^2 - 2x}{x^2 - 4} =$$

$$= \lim_{x \rightarrow 2^+} \frac{x(x-2)}{(x-2)(x+2)} = \frac{1}{2}$$