

237

$$\lim_{x \rightarrow 0^-} \frac{3^{\frac{1}{x}}}{\arctg^3 x} = \frac{0}{0}$$

$$= \lim_{x \rightarrow 0^-} \left(\frac{1/\sqrt{3}}{\sqrt{1-x^2}} \right)^3$$

$$= \lim_{x \rightarrow 0^-} \frac{x^3}{\arctg^3 x} \cdot \frac{3^{\frac{1}{x}}}{x^3} =$$

$$= \lim_{y \rightarrow -\infty} \frac{y^3 3^y}{3^y} = \lim_{y \rightarrow -\infty} \frac{y^3}{3^{-y}} =$$

$$= \lim_{t \rightarrow +\infty} \frac{t^3}{3^t} = 0$$

$$\lim_{x \rightarrow \frac{\pi}{2}} \frac{\log |x|}{\log |1-x|}$$

$$y = x - \frac{\pi}{2}$$
$$\lim_{y \rightarrow 0} \frac{\log |y|}{\log |1-y|}$$

$$y = \pi - \frac{2}{x}$$

$$\lim_{y \rightarrow 0} \frac{\log |y|}{\log |1-y|}$$

$$= \lim_{y \rightarrow 0} \frac{\log |y|}{\log |1-y|}$$