

Evaluate each limit:

$$1) \quad \lim_{x \rightarrow 0^+} \left(\frac{1}{x^2} - \frac{1}{\tan x} \right)$$

$$2) \quad \lim_{x \rightarrow 0^+} \left(\frac{1}{x} - \frac{1}{\sin x} \right)$$

$$3) \quad \lim_{x \rightarrow \infty} x^{1/\ln(x)}$$

$$4) \quad \lim_{x \rightarrow 0^+} x^{\sin x}$$