

مثال: هر یک از حدود زیر را بیابید.

$$\lim_{x \rightarrow 0} \frac{x \tan 2x}{\sin^2 3x} = \lim_{x \rightarrow 0} \frac{x \frac{\tan 2x}{2x} \cdot 2x}{\left(\frac{\sin 3x}{3x}\right)^2 \cdot (3x)^2} = \lim_{x \rightarrow 0} \frac{2x^2}{9x^2} = \frac{2}{9}$$

$$\lim_{x \rightarrow 0} \frac{1 - \cos 2x}{2x \sin 5x} = \lim_{x \rightarrow 0} \frac{2 \sin^2 x}{2x \cdot \frac{\sin 5x}{5x} \cdot 5x} = \lim_{x \rightarrow 0} \frac{2x^2}{10x^2} = \frac{1}{5}$$

$$\lim_{x \rightarrow 0} \frac{\cos 2x - \cos x}{x^2} = \lim_{x \rightarrow 0} \frac{+2 \sin 2x \sin x}{x^2} = \lim_{x \rightarrow 0} \frac{6x^2}{x^2} = 6$$