16 Найти предел функции:

$$\lim_{x\to 0} \frac{\sin 5x}{3x} = (1)$$

$$\lim_{x\to 0} \sin 5x = (\sin 5x)_{x=0} = \sin 5\cdot 0 = \sin 0 = 0$$

$$\lim_{x\to 0} 3x = (3x)_{x=0} = 3\cdot 0 = 0$$

$$(1) = \left(\frac{0}{0}\right)$$

$$\frac{\sin 5x}{3x} = \frac{5}{3}\frac{\sin 5x}{5x}$$

$$(1) = \lim_{x\to 0} \frac{5}{3}\frac{\sin 5x}{5x} = \frac{5}{3}\lim_{x\to 0}\frac{\sin 5x}{5x} = (2)$$

$y = 5x$

$$\lim_{x\to 0} y = \lim_{x\to 0} 5x = (5x)_{x=0} = 5\cdot 0 = 0$$

$$\lim_{x\to 0}\frac{\sin 5x}{5x} = \lim_{y\to 0}\frac{\sin y}{y} = 1$$

$$(2) = \frac{5}{3}\cdot 1 = \frac{5}{3}$$

Ответ:

$$\lim_{x\to 0} \frac{\sin 5x}{3x} = \frac{5}{3}$$