

$$\lim_{x \rightarrow 0} \frac{\tan(3x)}{\sin(5x)} = \lim_{x \rightarrow 0} \frac{\frac{\sin(3x)}{\cos(3x)}}{\sin(5x)} = \lim_{x \rightarrow 0} \frac{\sin(3x)}{\sin(5x)\cos(3x)}$$

$$= \lim_{x \rightarrow 0} \frac{\sin(3x)}{\sin(5x)} \cdot \frac{1}{\cos(3x)}$$

$$= \frac{3}{3} \cdot \frac{5}{5} \cdot \frac{1}{x} \cdot \lim_{x \rightarrow 0} \frac{\sin 3x}{1} \cdot \frac{1}{\sin 5x} \cdot \frac{1}{\cos(3x)}$$

$$= \frac{3}{5} \lim_{x \rightarrow 0} \frac{\sin 3x}{3x} \cdot \frac{5x}{\sin 5x} \cdot \frac{1}{\cos(3x)}$$

$$= \frac{3}{5} \cdot 1 \cdot 1 \cdot \frac{1}{\cos(30)}$$

$$= \frac{3}{5} \cdot 1 \cdot 1 \cdot 1$$

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

Special limit
 $\lim_{x \rightarrow 0} \frac{\sin(x)}{x} = 1$

Test 1
 Review
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