

Mat minat

M. Dedy Abit Agilah
XII MIPA-6

No.

$$1. \lim_{x \rightarrow 0} \frac{\sin 4x}{\tan(-5x)} = \lim_{x \rightarrow 0} \frac{4 \cos(4x)}{-5 \sec^2(-5x)}$$

$$= \frac{4 \cdot \cos(4 \cdot 0)}{-5 \cdot \sec^2(-5 \cdot 0)}$$

$$= \frac{4 \cdot 1}{-5 \cdot 1}$$

$$= -\frac{4}{5}$$

$$2. \lim_{x \rightarrow 0} \frac{\sin 7x}{3x - \tan 2x} = \lim_{x \rightarrow 0} \frac{7 \cos(7x)}{3 - 2 \sec(2x)^2}$$

$$= \frac{7 \cdot \cos(0)}{3 - 2 \sec(0)^2}$$

$$= \frac{7 \cdot 1}{3 - 2 \cdot 1^2}$$

$$= \frac{7}{3-2} = \frac{7}{1} = 7$$

$$\lim_{x \rightarrow 0} \frac{\sin 4x + \sin 6x}{\sin 2x}$$

$$= \lim_{x \rightarrow 0} \frac{4 \cos(4x) + 6 \cos(6x)}{2 \cos(2x)}$$

$$= \frac{4 \cdot 1 + 6 \cdot 1}{2 \cdot 1} = \frac{4+6}{2} = \frac{10}{2} = 5$$

$$4. \lim_{x \rightarrow 1} \frac{(x^2 - 1) \sin 2(x-1)}{-2 \sin^2(x-1)}$$

$$= \lim_{x \rightarrow 1} \frac{(x+1)(x-1) \sin^2 2(x-1)}{-2 \sin(x-1) \sin(x-1)}$$

$$= \lim_{x \rightarrow 1} (x+1) \frac{(x-1)}{-2 \sin(x-1)} \frac{\sin 2(x-1)}{\sin(x-1)}$$

$$= (x+1) \frac{1}{-2} \cdot 2 = \lim_{x \rightarrow 1} (x+1)(-1) = (1+1)(-1) = -2$$

$$5. \lim_{x \rightarrow \frac{\pi}{2}} (\pi - 2x) \tan x = \lim_{x \rightarrow \frac{\pi}{2}} \frac{\pi - 2x}{\frac{1}{-\csc^2(x)}}$$

$$= \lim_{x \rightarrow \frac{\pi}{2}} \left(\frac{-2}{-\csc^2(x)} \right)$$

Buku Tulis Jerningtif

$$= \frac{-2}{-\csc^2(x)}$$

$$= \frac{-2}{-1} = 2 //$$