

## Quiz 12

$$\textcircled{1} \quad \lim_{x \rightarrow 0} \frac{\cos 4x - 1}{3x^2} \xrightarrow{0/0} \text{L'H} \quad \lim_{x \rightarrow 0} \frac{-4 \sin 4x}{6x} \xrightarrow{0/0} \text{L'H}$$

$$\lim_{x \rightarrow 0} \frac{-16 \cos 4x}{6} = \frac{-16}{6} = -8/3.$$

$$\textcircled{2} \quad y = \lim_{x \rightarrow 0^+} (1+2x)^{5/x} \Rightarrow$$

$$\ln y = \lim_{x \rightarrow 0} \ln(1+2x)^{5/x} = \lim_{x \rightarrow 0} \frac{5 \ln(1+2x)}{x} \xrightarrow{0/0}$$

$$\text{L'H} \quad \lim_{x \rightarrow 0^+} \frac{5 \cdot 2}{1+2x} = 10, 10$$

$$y = e^{10}$$