

TRIGONOMETRY (Q 4 & 5, PAPER 2)

LESSON NO. 9: TRIG LIMITS

2005

4 (a) Evaluate $\lim_{\theta \rightarrow 0} \frac{\sin 4\theta}{3\theta}$.

SOLUTION

4 (a)

$$\boxed{\lim_{\theta \rightarrow 0} \frac{\sin \theta}{\theta} = 1} \dots\dots \textcircled{20}$$

$$\lim_{\theta \rightarrow 0} \frac{\sin 4\theta}{3\theta} = \lim_{\theta \rightarrow 0} \frac{\sin 4\theta}{4\theta} \times \frac{4\theta}{3\theta} = \frac{4}{3}$$

2001

5 (a) Evaluate $\lim_{\theta \rightarrow 0} \frac{\sin 7\theta}{\sin 2\theta}$.

SOLUTION

5 (a)

$$\lim_{\theta \rightarrow 0} \frac{\sin 7\theta}{\sin 2\theta} = \lim_{\theta \rightarrow 0} \left(\frac{\sin 7\theta}{7\theta} \times \frac{2\theta}{\sin 2\theta} \times \frac{7\theta}{2\theta} \right) = \frac{7}{2}$$

$$\boxed{\lim_{\theta \rightarrow 0} \frac{\sin \theta}{\theta} = 1} \dots\dots \textcircled{20}$$

OR

$$\boxed{\lim_{\theta \rightarrow 0} \frac{\theta}{\sin \theta} = 1} \dots\dots \textcircled{20}$$