

1. Suppose that  $(\theta_n)$  is a null sequence with only nonzero terms. Calculate  $\lim_{n \rightarrow \infty} \frac{\sin(7\theta_n)}{5\theta_n}$ .

2. Suppose that  $(\theta_n)$  is a null sequence with only nonzero terms. Calculate  $\lim_{n \rightarrow \infty} \frac{5 - 5 \cos(2\theta_n)}{\theta_n}$ .

3. Suppose that  $(\theta_n)$  is a null sequence with only nonzero terms. Calculate  $\lim_{n \rightarrow \infty} \frac{5 - 5 \cos(2\theta_n)}{\theta_n^2}$ .

4. Suppose that  $(\theta_n)$  is a null sequence with only nonzero terms. Calculate  $\lim_{n \rightarrow \infty} \frac{\tan(5\theta_n)}{\theta_n}$ .