

5F Small Angle Approximations

1. When θ is small, find the approximate value of:

$$\frac{\sin 2\theta + \tan \theta}{2\theta}$$

2. When θ is small, find the approximate value of:

$$\frac{\cos 4\theta - 1}{\theta \sin 2\theta}$$

3.

a) Show that, when θ is small:

$$\sin 5\theta + \tan 2\theta - \cos 2\theta \approx 2\theta^2 + 7\theta - 1$$

b) Hence, state the approximate value of $\sin 5\theta + \tan 2\theta - \cos 2\theta$ for small values of θ