
SHOW ALL YOUR WORK

Q1. If $6\cos^2 15^\circ - 3 =$

- (a) $\frac{3\sqrt{3}}{2}$
- (b) $\sqrt{3}$
- (c) $\frac{3}{2}$
- (d) $\frac{\sqrt{3}}{2}$

Q2. If $\sin 8^\circ = x$, then $\sin 16^\circ$ in terms of x is

- (a) $\sqrt{1-x^2}$
- (b) $2x\sqrt{1-x^2}$
- (c) $2x$.
- (d) $2x\sqrt{1+x^2}$.

Q3. If $f(x) = -\sin 2x + \sqrt{3}\cos 2x$. Write $f(x) = k\sin(bx + \alpha)$, then the phase shift of the graph f is

- (a) $\frac{\pi}{6}$
- (b) $\frac{2\pi}{3}$
- (c) π
- (d) $\frac{\pi}{3}$

Q2. If $\sec \theta = -3$, where θ in the third quadrant, then find: .

a) $\csc 2\theta$

b) $\sin \frac{\theta}{2}$

Q3. Verify

a) $\frac{\sin^3 x + \cos^3 x}{\sin x + \cos x} = 1 - \frac{1}{2} \sin 2x$

b) $\frac{1}{2}(\tan \theta + \cot \theta) = \csc 2\theta$