

International Indian School Buraidah
Work Sheet-Subject:Maths-(2024-25)
Ch: Trigonometric Functions
Class:XI

Show that :

$$1-\cos(36^\circ - A) \cos(36^\circ + A) + \cos(54^\circ - A) \cos(54^\circ + A) = \cos 2A$$

$$2-\cos 68^\circ 25' \cos 38^\circ 25' + \sin 68^\circ 25' \sin 38^\circ 25' = \frac{\sqrt{3}}{2}$$

$$3-\sin 32^\circ \cos 28^\circ + \cos 32^\circ \sin 28^\circ = \frac{\sqrt{3}}{2}$$

$$4-\frac{\tan 32^\circ 15' + \tan 12^\circ 45'}{\tan 32^\circ 15' - \tan 12^\circ 45'} = 1$$

$$5-\tan 75^\circ + \cot 75^\circ = 4$$

$$6-\tan\left(\frac{\pi}{4} + \theta\right) + \tan\left(\frac{3\pi}{4} + \theta\right) = -1$$

$$7--\cos(45^\circ + A) \cos(45^\circ + B) - \sin(45^\circ + A) \sin(45^\circ + B) = -\sin(A + B)$$

$$8-\frac{\tan(45 + \theta) + \tan(45 - \theta)}{\tan(45 + \theta) - \tan(45 - \theta)} = \frac{1}{2\sin\theta \cos\theta}$$

$$9-\cos^2 \frac{\pi}{8} + \cos^2 \frac{3\pi}{8} + \cos^2 \frac{5\pi}{8} + \cos^2 \frac{7\pi}{8} = 2$$

$$10-\tan 315^\circ \cot(-405^\circ) + \cot 495^\circ \tan(-585^\circ) = 2$$

11-Find the values of :

a) $\cos 495^\circ$

(b) $\operatorname{Cosec}(-585^\circ)$

(c) $\cos 1050^\circ$

12-If $\sin \alpha = \frac{15}{17}$ and $\cos \beta = \frac{12}{13}$ find the value of $\cos(\alpha - \beta)$

Prove the following:

$$13-\frac{\tan 5\theta + \tan 3\theta}{\tan 5\theta - \tan 3\theta} = 4\cos 2\theta \cos 4\theta$$

$$14-\frac{\sin 3x + \sin 5x + \sin 7x + \sin 9x}{\cos 3x + \cos 5x + \cos 7x + \cos 9x} = \tan 6x$$

$$15-\tan\left(\frac{\pi}{4} + \theta\right) + \tan\left(\frac{\pi}{4} - \theta\right) = 2\sec 2\theta$$

$$16-\frac{(\cos x - \cos 3x)(\sin 8x + \sin 2x)}{(\sin 5x - \sin x)(\cos 4x - \cos 6x)} = 1$$

$$17-\frac{\tan(A+B)}{\cot(A-B)} = \frac{\sin^2 A - \sin^2 B}{\cos^2 A - \cos^2 B}$$

$$18-\frac{\sec 8A - 1}{\sec 4A - 1} = \frac{\tan 8A}{\tan 2A}$$