

Trigonometry Worksheet

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Refer to the trigonometric identities to solve the following questions.

1. Express $-\frac{7\pi}{24}$ angle in degree measure and 945° in radian measure.
2. The difference between two acute angles of a right angled triangle is $\frac{3\pi}{10}$. Find the angle in degrees and radian measure.
3. The measures of angles of a triangle are in the ratio 2:3:5. Find the angle in radian and degrees.
4. A pendulum of 14 cms long oscillates through an angle of 18° . Find the length of the path described by its extremity.
5. Two arcs of the same length subtend angles of 60° and 75° at the centres of the circles. What is the ratio of radii of two circles?
6. If $\tan \theta = -\frac{4}{3}$, $\frac{3\pi}{2} < \theta < 2\pi$, find $3 \sec \theta + 5 \tan \theta$
7. Find the possible value of $\sin x$, if $8 \sin x - \cos x = 4$.
8. If $5 \tan A = \sqrt{7}$, where $\pi < A < 3\frac{\pi}{2}$ and $\tan B = \sqrt{11}$, where $3\frac{\pi}{2} < B < 2\pi$. Find the value of $\csc A - \tan B$.
9. Find the value of $\frac{\cos(\pi+x) \cos(-x)}{\sin(\pi-x) \cos(\frac{\pi}{2}+x)}$
10. Prove that $\cos^2 x - \cos^2 6x = \sin 4x \sin 8x$
11. Prove that $\sin(\frac{\pi}{6} + A) \cdot \cos(\frac{\pi}{3} - B) + \sin(\frac{\pi}{3} - B) \cdot \cos(\frac{\pi}{6} + A) = \cos(A - B)$
12. Prove that $\cot(A + B) \cdot \cot(A - B) = \frac{\cos^2 B + \sin^2 A}{\sin^2 A - \sin^2 B}$
13. Prove that: $\sqrt{2 + \sqrt{2 + \sqrt{2 + 2 \cos 8\theta}}} = 2 \cos \theta$
14. Find general solution of the following trigonometric equations:
 1. $\cos(\frac{3}{2}\theta) = 0$
 2. $\cos^2 3\theta = 0$
 3. $\sec^2 2x = 1 - \tan 2x$
15. What is the value of $\tan 75^\circ + \tan 15^\circ$