

National Institute of Open Schooling (NIOS)
Senior Secondary Course
Lesson – 3: Trigonometry Function-I
Worksheet-03

1. Draw any one of the trigonometric functions on the graph paper. Write your observations on the following:
 - (i) Maximum and minimum value of the function.
 - (ii) Increasing and Decreasing of the function.
2. The minute hand of a clock is 14 cm. How far does its extremity move in 25 minutes?
3. The angle of a triangle is in Arithmetic Progression and the greatest angle is doubled the least. Express the angle of triangle in degrees and radians.
4. A wheel makes 360 revolutions in half minute. Through how many radians does it turn in one second?
5. A horse is tied to a post by a rope 60 meter long. If the horse moves along the circumference of a circle always keeping the rope in tight. Find how far it will have gone when the rope has traced an angle of 120° .
6. Check the equation $2 \sin^2 \theta - \cos \theta + 4 = 0$, is it possible? If not reason out why?
7. If $\cos \theta + \sin \theta = \sqrt{2} \cos \theta$, then show that $\cos \theta - \sin \theta = \sqrt{2} \sin \theta$
8. Prove that in any triangle ABC: (i) $\cos \frac{A+B}{2} = \sin \frac{C}{2}$ (ii) $\tan \frac{A+B}{2} = \cot \frac{C}{2}$
9. Draw a graph of a trigonometry function $y = \tan \theta$, from the graph check symmetric about axes and continuity of the function.
10. Prepare a table of trigonometry functions of $\tan \theta$, $\cot \theta$, $\sec \theta$ and $\operatorname{cosec} \theta$, When θ takes values 0° , 30° , 45° , 90° and 180° .