National Institute of Open Schooling (NIOS)
Secondary Course
Lesson –23: Trigonometry Ratios of Some Special Angles
Worksheet – 23

1. In triangle ABC, If A $= 30^0$ verify that $\sin 3A = 3\sin A - 4\sin^3 A$

2. If $\cos \quad - \quad = \sqrt{\quad}$ then prove that $\cos \quad + \quad = \sqrt{\quad}$

3. If $1 + \sin^2 \quad =$ then prove that $\tan \quad = \quad \frac{1}{2}$

4. The angle of elevation of the top of a tower is 30 m high from the foot of another tower in the same plane is 60^0, and the angle of elevation of the top of the second tower from the foot of the fist tower is 30^0. Find the distance between the two towers and also the height of the other tower.

5. Prove that: $(\sin x + \cos x)(\tan x + \cot x) = \sec x + \cos ecx$.

6. Evaluate: $\frac{\sec 29^0}{\cos ec61^0} + 2\cot 8^0 \cot 17^0 \cot 45^0 \cot 73^0 \cot 82^0$

7. Simplify: $\frac{\sin(90^0 - \quad)\quad(\quad^0 - \quad)}{\sec(90^0 - \quad)\quad(\quad^0 - \quad)\quad(\quad^0 - \quad)} + \frac{(\quad^0 - \quad)}{\tan}$

8. If $\tan \quad = \frac{1}{\sqrt{5}}$ find the value of $\frac{\cos ec^2 \quad - \quad^2}{\cos ec^2 \quad + \quad^2}$

9. In a triangle ABC angle A is 30^0, verify that Sin 3A = 3 Sin A- $4\text{Sin}^3\text{A}$

10. The shadow of a Building, when the angle of elevation of the Sun is 45^0 is found to be 15 metres longer than when it was 60^0. Find the height of the Building.