

4. Express  $\cos 75^\circ + \cot 75^\circ$  in terms of trigonometric ratios of angles between  $0^\circ$  and  $45^\circ$ .

5. Evaluate :

$$(i) \sin^2 20^\circ + \sin^2 70^\circ \quad (ii) \frac{\cos^2 20^\circ + \cos^2 70^\circ}{\sin^2 59^\circ + \sin^2 31^\circ}$$

6. Evaluate :

$$\left(\frac{\sin 27^\circ}{\cos 63^\circ}\right)^2 + \left(\frac{\cos 63^\circ}{\sin 27^\circ}\right)^2$$

7. Evaluate :

$$\operatorname{cosec}^2 67^\circ - \tan^2 23^\circ$$

Prove that :

$$8. \frac{\cos(90^\circ - \theta)}{\sin \theta} + \frac{\sin \theta}{\cos(90^\circ - \theta)} = 2, \theta \neq 0^\circ$$

$$9. \sec^2 \theta - \cot^2(90^\circ - \theta) = \cos^2(90^\circ - \theta) + \cos^2 \theta$$

$$10. \frac{\cos(90^\circ - \theta)\cos \theta}{\tan \theta} + \cos^2(90^\circ - \theta) = 1$$