SUCCESS INSTITUTE Assignment - 83 10th Class Expert

Q1. Write the values of :

(i) $\text{Sin } 30^0$ (ii) $\cos 45^0$ (iii) $\tan 60^0$ (iv) $\text{cosec } 90^0$

Q2. Evaluate :

(i) $\dfrac{1-\cot^2 45^0}{1+\sin^2 90^0}$ (ii) $\dfrac{1-\cos 0^0}{1+\cos 0^0}$ (iii) $\text{cosec } 30^0 + \cot 45^0$ (iv) $\text{cosec}^2 45^0$ (v) $\cos 30^0 \cos 60^\circ \cos 90^0$

Ans. (i) 0 (ii) 0 (iii) 3 (iv) 2 (v) 0

Q3. Evaluate :

(i) $\sin 60^\circ \cos 30^0 + \sin 30^0 \cos 60^0$ (ii) $2\tan^2 45^0 + \cos^2 30^0 - \sin^2 60^0$ Ans. (i) 1 (ii) 2

(iii) $\cos 60^0 \cos 30^0 - \sin 60^0 \sin 30^0$ (iv) $\cos 60^0 \cos 30^0 + \sin 60^0 \sin 30^0$ Ans. (iii) 0 (iv) $\dfrac{\sqrt{3}}{2}$

Q4. Evaluate :

(i) $\text{cosec}^2 30^0 \sin^2 45^0 - \sec^2 60^0$ (ii) $4\cot^2 45^0 - \sec^2 60^0 + \sin^2 60^0 + \cos^2 90^0$ $Ans.$ (i) -2 (ii) $\dfrac{3}{4}$

(iii) $3\cos^2 30^0 + \sec^2 30^0 + 2\cos 0^0 + 3\sin 90^0 - \tan^2 60^0$ (iv) $\dfrac{\sin^2 45^0 + \cos^2 45^0}{\tan^2 60^0}$ $Ans.$ (iii) $\dfrac{67}{12}$ (iv) $\dfrac{1}{3}$

(v) $\dfrac{\sin 60^0}{\cos^2 45^0} - \cot 30^0 + 15\cos 90^0$ (vi) $\dfrac{\sin 30^0 - \sin 90^0 + 2\cos 0^0}{\tan 30^0 \tan 60^0}$ $Ans.$ (v) 0 (vi) $\dfrac{3}{2}$

Q5. Evaluate :

(i) $\dfrac{2\tan 30^0}{1+\tan^2 30^0}$ (ii) $\dfrac{1-\tan^2 45^0}{1+\tan^2 45^0}$ (iii) $\dfrac{2\tan 30^0}{1-\tan^2 30^0}$ $Ans.$ (i) $\dfrac{\sqrt{3}}{2}$ (ii) 0 (iii) $\sqrt{3}$

Q6. Find the value of θ *in each of the following* :

(i) $2\cos\theta = 1$ (ii) $2\cos 3\theta = 1$ (iii) $2\,\text{Sin}\, 2\theta = \sqrt{3}$ (iv) $\tan 5\theta = 1$ (v) $2\sin 2\theta = \sqrt{3}$

(vi) $2\cos 3\theta = 1$ (vii) $\sqrt{3}\tan 2\theta - 3 = 0$ (viii) $2\cos^2\theta = \frac{1}{2}$ (ix) $2\sin^2\theta = \frac{1}{2}$ (x) $3\tan^2\theta - 1 = 0$

Ans. (i) $\theta = 60^0$ (ii) $\theta = 20^0$ (iii) $\theta = 30^0$ (iv) $\theta = 9^0$ (v) $\theta = 30^0$ (vi) $\theta = 20^0$ (vii) $\theta = 30^0$
$(viii)$ $\theta = 60^0$ (ix) $\theta = 30^0$ (x) $\theta = 30^0$

Q7. Evaluate :

(i) $\dfrac{3\tan^2 30^0 - \tan^2 60^0 + \text{cosec } 30^0 + \tan 45^0}{\cot^2 45^0}$ (ii) $\dfrac{\tan^2 60^0 + 4\cos^2 45^0 + 4\,\text{cosec}^2 60^0 + 2\cos^2 90^0}{2\,\text{cosec } 30^0 + 3\sec 60^0 - \frac{7}{3}\cot^2 30^0}$

(iii) $\dfrac{2\left(\cos^2 45^0 + \tan^2 60^0\right) - 6\left(\sin^2 45^0 - \tan^2 60^0\right)}{\tan 30^0 + \cot 60^0}$ (iv) $\tan^2 60^0 + 4\sin^2 45^0 + \dfrac{3\sec^2 30^\circ + 5\cos^2 90^0}{\text{cosec } 30^0 + \sec 60^0 - \cot^2 30^0}$

Ans. (i) 1 (ii) $\frac{31}{9}$ (iii) $11\sqrt{3}$ (iv) 9

Q8. If $\sin(A+B) = 1$ and $\cos(A-B) = 1$, find A and B. Ans. $A = 45^0$ $B = 45^0$

Q9. If $\tan(A-B) = \frac{1}{\sqrt{3}}$ and $\tan(A+B) = \sqrt{3}$, find A and B. Ans. $A = 45^0$ $B = 15^0$

Q10. If $\sin(A-B) = \frac{1}{2}$ and $\cos(A+B) = \frac{1}{2}$, find A and B. Ans. $A = 45^0$ $B = 15^0$

Q11. If $\sin(A+B) = 1$ and $\cos(A-B) = \frac{\sqrt{3}}{2}$, find A and B. Ans. $A = 60^0$ $B = 30^0$