VSA (1 mark)

7. If $\tan\theta + \cot\theta = \frac{4\sqrt{3}}{3}$, then find the value of $\tan^2\theta + \cot^2\theta$. (2021C)

use identity manerpliation

SA I (2 marks)

SE Board Questions

SA II (3 marks)

Identity based

10. Prove that : $\frac{\tan\theta - \cot\theta}{\sin\theta \cos\theta} = \sec^2\theta - \operatorname{cosec}^2\theta$

(2024)

30. If $\sin\theta - \cos\theta = 0$, then find the value of $\sin^4\theta + \cos^4\theta$. (2023)

31. Evaluate : $\frac{5}{\cot^2 30^\circ} + \frac{1}{\sin^2 60^\circ} - \cot^2 45^\circ + 2\sin^2 90^\circ$ (2023)

(c) $\frac{-}{m}$ (d) $-m$ (2024) AM

Identity manupulation.

40. If $\frac{x}{3} = 2\sin A$, $\frac{y}{3} = 2\cos A$, then the value of $x^2 + y^2$ is :

(a) 36 (b) 9

(c) 6 (d) 18 (2024) EV

(NCERT, 2023)

73. Show that $\sin^6 A + 3\sin^2 A \cos^2 A = 1 - \cos^6 A$

using rearrangement and identity manipulation

(2021C) Ap

74. Prove that $\frac{1+\sec\theta-\tan\theta}{1+\sec\theta+\tan\theta} = \frac{1-\sin\theta}{\cos\theta}$

(9) Prove:

(i) $\sin^6\theta + \cos^6\theta + 3\sin^2\theta \cdot \cos^2\theta = 1$

iii) $\cos^4\theta - \cos^2\theta = \sin^4\theta - \sin^2\theta$

iv) $\cot^4\theta - 1 = \operatorname{cosec}^4\theta - 2\operatorname{cosec}^2\theta$

(18) If $x \sin^3\theta + y \cos^3\theta = \sin\theta \cos\theta$ and $x \sin\theta = y \cos\theta$, prove: $x^2 + y^2 = 1$