10 Class Math Tuition Assignment

Assignment – 8

Assigned To = All 10 Class Student

Note: All Questions are compulsory to attempt

Chapter = Introduction to Trigonometry

Submission Date = See on portal **MM = 30**

Q1. In a △ ABC, right-angled at B, AB = 24 cm , BC = 7 cm. Determine

(i) sin A , cos A (ii) sin C, cos C

Q2. If cot θ = 7/8, evaluate

(i) (1+sin θ)(1–sin θ)/ (1+cos θ)(1–cos θ)

(ii) $\cot^2 \theta$

Q3. **Prove that:**

(i) tan 20° tan 35° tan 45° tan 55° tan 70° = 1

(ii) sin 48° sec 48° + cos 48° cosec 42° = 2

(iii) $\frac{\sin 70°}{\cos 20°} + \frac{\operatorname{cosec} 20°}{\sec 70°} - 2 \cos 70° \operatorname{cosec} 42° = 0$

(iv) $\frac{\cos 80°}{\sin 10°} + \cos 59° \operatorname{cosec} 31° = 2$

Q4.

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If $\text{cosec } A = \sqrt{2}$, find the value of $\dfrac{2\sin^2 A + 3\cot^2 A}{4(\tan^2 A - \cos^2 A)}$.

Q5. Prove the Following

(i)

$$\sqrt{\frac{1-\cos\theta}{1+\cos\theta}} = \text{cosec}\,\theta - \cot\theta$$

(ii) $\sin\theta/(1-\cos\theta) = \text{cosec}\,\theta + \cot\theta$

(iii) $(\text{cosec } A - \sin A)(\sec A - \cos A)(\tan A + \cot A) = 1$

(iv)

(i) $\cot\theta - \tan\theta = \dfrac{2\cos 2\theta - 1}{\sin\theta * \cos\theta}$

(ii) $\tan\theta - \cot\theta = \left(\dfrac{2\sin^2\theta - 1}{\sin\theta * \cos\theta}\right)$

(v) $(\cos^2\theta/\sin\theta) - \text{cosec}\,\theta + \sin\theta = 0$

(vi)

$$\frac{1+\sin\theta}{\cos\theta} + \frac{\cos\theta}{1+\sin\theta} = 2\sec\theta$$

(vii)

$$\frac{(1+\sin\theta)^2 + (1-\sin\theta)^2}{2\cos^2\theta} = \frac{1+\sin^2\theta}{1-\sin^2\theta}$$

(viii)

$$\frac{\tan\theta}{1-\cot\theta} + \frac{\cot\theta}{1-\tan\theta} = 1 + \tan\theta + \cot\theta$$

(ix) $\text{cosec}^6\theta = \cot^6\theta + 3\cot^2\theta\,\text{cosec}^2\theta + 1$

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(x)

$$\frac{\sec A - \tan A}{\sec A + \tan A} = \frac{\cos^2 A}{(1 + \sin A)^2}$$

(xi)

$$\sqrt{\frac{(1 - \cos A)}{(1 + \cos A)}} + \sqrt{\frac{(1 + \cos A)}{(1 - \cos A)}} = 2 \operatorname{cosec} A$$

(xii)

$$\frac{\cos A}{1 - \tan A} + \frac{\sin A}{1 - \cot A} = \sin A + \cos A$$

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