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Trigonometric Ratios of multiple and Sub multiple Angles Ex 9.1 Q 1

We have,

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

$$= \frac{\sin\theta}{\cos\theta}$$

$$= \tan\theta = \text{RHS}$$

Trigonometric Ratios of multiple and Sub multiple Angles Ex 9.1 Q 2

LHS,

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

$$= \frac{\cos\theta}{\sin\theta}$$

$$= \cot\theta = \text{RHS}$$

Trigonometric Ratios of multiple and Sub multiple Angles Ex 9.1 Q 3

LHS,

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

$$= \frac{\sin\theta}{\cos\theta}$$

$$= \tan\theta = \text{RHS}$$

Trigonometric Ratios of multiple and Sub multiple Angles Ex 9.1 Q 4

LHS,

$$\sqrt{2+\sqrt{2+2\cos 4\theta}}$$

$$=\sqrt{2+\sqrt{2\left(1+\cos 4\theta\right)}}$$

$$=\sqrt{2+\sqrt{2.2\cos^2 2\theta}}$$

$$=\sqrt{2+2\cos 2\theta}$$

$$=\sqrt{2\left(1+\cos 2\theta\right)}$$

$$=\sqrt{2.2\cos^2\theta}$$

$$=2\cos\theta = \text{RHS}$$

Trigonometric Ratios of multiple and Sub multiple Angles Ex 9.1 Q 5

LHS,

$$\frac{1-\cos 2\theta+\sin 2\theta}{1+\cos 2\theta+\sin 2\theta}$$

$$=\frac{2\sin^2\theta+2\sin\theta.\cos\theta}{2\cos^2+2\sin\theta.\cos\theta}$$

$$=\frac{2\sin\theta\left(\sin\theta+\cos\theta\right)}{2\cos\theta\left(\cos\theta+\sin\theta\right)}$$

$$=\frac{\sin\theta}{\cos\theta}$$

$$=\tan\theta = \text{RHS}$$

********** END **********