



Air maths tuition

Interact, engage and perform

Trigonometric Identities to Prove 6

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

Proof:
$$\frac{\cos \theta}{1 - \sin \theta} + \frac{1 - \sin \theta}{\cos \theta} \equiv \frac{\cos^2 \theta + (1 - \sin \theta)(1 - \sin \theta)}{\cos \theta (1 - \sin \theta)}$$
$$\equiv \frac{\cos^2 \theta + 1 - 2 \sin \theta + \sin^2 \theta}{\cos \theta (1 - \sin \theta)}$$
$$\equiv \frac{2 - 2 \sin \theta}{\cos \theta (1 - \sin \theta)}$$
$$\equiv \frac{2(1 - \sin \theta)}{\cos \theta (1 - \sin \theta)}$$
$$\equiv 2 \sec \theta$$

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