

Day #73 Homework

Analytically show that the equations below represent trigonometric identity statements.

1. $\sec^2 \theta (1 - \cos^2 \theta) = \tan^2 \theta$

2. $\cos x (\sec x - \cos x) = \sin^2 x$

3. $\cos \theta + \sin \theta \tan \theta = \sec \theta$

4. $(1 - \cos \alpha)(\csc \alpha + \cot \alpha) = \cos \alpha \tan \alpha$

Analytically show that the equations below represent trigonometric identity statements.

$$5. \sin x(\csc x + \sin x \sec^2 x) = \sec^2 x$$

$$6. \sec^2 \theta + \csc^2 \theta = \sec^2 \theta \csc^2 \theta$$

$$7. \frac{1 + \sec \theta}{\tan \theta} + \frac{\tan \theta}{1 + \sec \theta} = 2 \csc \theta$$

If $\theta = \frac{\pi}{4}$, numerically show that the following equations are identities by finding the exact values of each expression. Show your work and leave your answers with rationalized denominators.

8. $\cos \theta + \sin \theta \tan \theta = \sec \theta$

9. $\frac{\sin^2 \theta}{\cos \theta} = \sec \theta - \cos \theta$

Day #74 Homework

Analytically show that the equations below represent trigonometric identity statements.

1.
$$\frac{\tan \alpha}{\sec \alpha} = \tan \alpha \cos \alpha$$

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

3.
$$\cot \theta + \tan \theta = \sec \theta \csc \theta$$

4.
$$\cot \theta \sin \theta = \cos^3 \theta + \cos \theta \sin^2 \theta$$

$$5. \frac{\csc \theta + \cot \theta}{\tan \theta + \sin \theta} = \cot \theta \csc \theta$$

$$6. \cot \theta \tan^3 \theta = \frac{\sin \theta \tan \theta}{\cos \theta}$$