

Advanced Mathematics

Proving Trigonometric Identities

Worksheet #3

Verify the trigonometric identities.

- $\cos^3 A + \sin^2 A \cdot \cos A = \cos A$
- $\frac{\csc A}{\sec A} = \cot A$
- $\frac{\sec^2 A - 1}{\tan A} = \tan A$
- $\sec A \cdot \sin A \cdot \cot A = 1$
- $\cot A \cdot \csc A \cdot \tan^2 A = \sec A$
- $\cos^2 A - \sin^2 A = 1 - 2 \sin^2 A$
- $\frac{1 + \tan A}{\tan A} = 1 + \cot A$
- $\csc^4 A - \cot^4 A = 2 \csc^2 A - 1$
- $\frac{\cos A + \cot A}{\csc A + 1} = \cos A$
- $\frac{1}{\sec A - \tan A} = \sec A + \tan A$
- $1 + \cos A = \cot A (\sin A + \tan A)$
- $\frac{\tan A}{1 + \tan^2 A} = \sin A \cdot \cos A$
- $(\sec A - \tan A)^2 = \frac{1 - \sin A}{1 + \sin A}$
- $\sec^2 A (1 - \sin^2 A) = 1$
- $\cos A (\csc A - \sec A) = \cot A - 1$
- $\frac{\tan^2 A \cdot \csc^2 A - 1}{\csc A \cdot \tan^2 A \cdot \sin A} = 1$
- $\frac{\csc A (\sin^2 A + \cos^2 A \cdot \tan A)}{\sin A + \cos A} = 1$