

On a separate sheet of paper, prove that the equations are identities.

1. $\sin \theta = \sin^3 \theta + \cos^2 \theta \sin \theta$

2. $\sec \theta = \sec \theta \sin^2 \theta + \cos \theta$

3. $\tan \theta = \cot \theta \tan^2 \theta$

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

5. $\tan^2 \theta - \sin^2 \theta = \tan^2 \theta \sin^2 \theta$

6. $\cot^2 \theta \cos^2 \theta = \cot^2 \theta - \cos^2 \theta$

7. $\tan A + \cot A = \sec A \csc A$

8. $\cot A = \csc A \sec A - \tan A$

9. $\sin x + \cos x = \frac{\sec x + \csc x}{\csc x \sec x}$

10. $\frac{\cos x + \tan x \sin x}{\sec x} = 1$

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