

Advanced Algebra w/Trig  
Trig Identities Worksheet #1

Name \_\_\_\_\_  
Date \_\_\_\_\_ Period \_\_\_\_\_

**Simplify.**

1.  $\sin \theta(1 + \cot^2 \theta)$

2.  $\frac{1 - \sin^2 \theta}{\sin^2 \theta}$

3.  $\frac{\cos \theta \csc \theta}{\tan \theta}$

4.  $\csc^2 \alpha - \cot^2 \alpha$

5.  $\tan \theta \csc \theta$

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

**Verify each identity.**

$$7. \frac{\sin x}{\csc x} + \frac{\cos x}{\sec x} = 1$$

$$8. \frac{\sin x \csc x}{\cot x} = \tan x$$

**Challenge Problem**

$$9. \frac{1 - \tan^2 x}{\cot^2 x - 1} = \tan^2 x$$