

**PreAP Precalculus**  
**WS: Proving Trig Identities**  
**Spring 2019**

Name \_\_\_\_\_

Date \_\_\_\_\_ Per \_\_\_\_\_

Prove the following. Use your own paper, one side only, showing all necessary steps in a neat and orderly manner:

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

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

3.  $\sec^2 x + \csc^2 x = \sec^2 x \csc^2 x$

4.  $\frac{1 + \sec x}{\tan x} + \frac{\tan x}{1 + \sec x} = 2 \csc x$

5.  $\tan x - 1 = \frac{\sec x - \csc x}{\csc x}$

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

7.  $\frac{\cos x}{1 + \sin x} + \frac{1 + \sin x}{\cos x} = 2 \sec x$

8.  $\frac{\sec x - \tan x}{\cos x} - \frac{\cos x}{\sec x + \tan x} = \frac{\sin^2 x}{1 + \sin x}$