

PreAP Precalculus
WS – Proving Trig Identities v2
Spring 2019

Name _____

Date _____ Per _____

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

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

2.
$$\cos x + \frac{\sin x}{\cot x} = \frac{\cot x + \tan x}{\csc x}$$

3.
$$\frac{1}{\sec x - 1} + \frac{1}{\sec x + 1} = 2 \cot x \csc x$$

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

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

6.
$$\frac{\sec x - 1}{\tan x} + \frac{\tan x}{\sec x + 1} = \frac{2 \sin x}{1 + \cos x}$$

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

8.
$$\frac{\cos x}{1 - \tan x} + \frac{\sin x}{1 - \cot x} = \sin x + \cos x$$

9.
$$\frac{\tan^2 x}{1 - \cos x} = \sec x + \sec^2 x$$

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