

Honors Algebra 3-4 / Precalculus  
5.2 Worksheet

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

Prove that each equation is an identity.

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

2.  $(1 - \cos x)(1 + \cos x) = \sin^2 x$

3.  $\cos^2 x \csc x \sec x = \cot x$

4.  $(1 - \cos^2 x)(\cot x) = \sin x \cos x$

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

6.  $\tan x \csc x \cos x = 1$

7.  $(\sin x - \cos x)^2 = 1 - 2\sin x \cos x$

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

9.  $\csc x - \sin x = \cot x \cos x$

10.  $\cot x(\tan x \sin x + \cos x) = \csc x$

$$11. (1 + \sin x)(1 - \sin x) = \cos^2 x$$

$$12. \cos x + \sin x \tan x = \sec x$$

$$13. \frac{\sin x}{\csc x} + \frac{\cos x}{\sec x} = 1$$

$$14. \frac{1 + \sin x}{\cos x} = \frac{\cos x}{1 - \sin x}$$

$$15. \frac{\csc^2 x}{\cot^2 x} = 1 + \tan^2 x$$

$$16. \frac{\sec^2 x - 1}{\sin^2 x} = \sec^2 x$$

$$17. \tan^2 x - \sin^2 x = \sin^2 x \tan^2 x$$

$$18. \frac{1 - \sin^2 x}{\csc x - \sin x} = \sin x$$

$$19. \frac{\sec x - \cos x}{\cos x} = \tan^2 x$$

$$20. \sin x(\csc x - \sin x) = \cos^2 x$$