

Honors Algebra II/Trig
8.6 Review Worksheet

Name: Key

Prove.

$$1. \frac{1}{(1+\sin x)(1-\sin x)} + \frac{1}{(1+\sin x)(1-\sin x)} = 2\sec^2 x$$

$$\frac{1+\sin x + 1-\sin x}{1-\sin^2 x} =$$

$$\frac{2}{\cos^2 x} =$$

$$2\sec^2 x = 2\sec^2 x$$

$$3. \frac{\sec^2 x - \tan^2 x + \tan x}{\sec x} = \cos x + \sin x$$

$$\frac{1 + \tan x}{\sec x} =$$

$$\frac{1}{\sec x} + \frac{\tan x}{\sec x}$$

$$\frac{1}{\sec x} + \frac{\sin x}{\cos x} \cdot \frac{\cos x}{1}$$

$$\cos x + \sin x = \cos x + \sin x$$

$$5. \frac{\cos^2 x}{1-\sin x} = 1 + \sin x$$

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

$$\frac{(1+\sin x)(1-\sin x)}{1-\sin x} =$$

$$1 + \sin x = 1 + \sin x$$

$$2. \cot^2 x \csc^2 x - \cot^2 x = \cot^4 x$$

$$\cot^2 x (\csc^2 x - 1) =$$

$$\cot^2 x \cdot \cot^2 x =$$

$$\cot^4 x = \cot^4 x$$

$$4. \frac{\cos x (\sin x + \cos x)}{\cos x \sin x} - \frac{(\cos x - \sin x) \sin x}{\cos x \sin x} = \sec x \csc x$$

$$\frac{\cos x \sin x + \cos^2 x - \cos x \sin x + \sin^2 x}{\cos x \sin x} =$$

$$\frac{\cos^2 x + \sin^2 x}{\cos x \sin x} =$$

$$\frac{1}{\cos x \sin x} =$$

$$\sec x \csc x = \sec x \csc x$$

$$6. \frac{(1+\sin x)1 + \sin x}{(1+\sin x)\cos x} + \frac{\cos x}{(1+\sin x)\cos x} = 2\sec x$$

$$\frac{1 + 2\sin x + \sin^2 x + \cos^2 x}{\cos x (1+\sin x)} =$$

$$\frac{2 + 2\sin x}{\cos x (1+\sin x)} =$$

$$\frac{2(1+\sin x)}{\cos x (1+\sin x)} =$$

$$\frac{2}{\cos x} =$$

$$2\sec x = 2\sec x$$

$$7. \quad \frac{\sec x}{\csc x} + \frac{\sin x}{\cos x} = 2 \tan x$$

$$\frac{\sin x}{\cos x} + \frac{\sin x}{\cos x} =$$

$$\frac{2 \sin x}{\cos x} =$$

$$2 \tan x = 2 \tan x$$

$$8. \quad \sin x + \cot x \cos x = \csc x$$

$$\frac{\sin x \cdot \sin x + \cos x \cdot \cos x}{\sin x} =$$

$$\frac{\sin^2 x + \cos^2 x}{\sin x} =$$

$$\frac{1}{\sin x} =$$

$$\csc x = \csc x$$

$$9. \quad 1 - \frac{\cos^2 x}{1 - \sin x} = -\sin x$$

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

$$1 - \frac{(1 + \sin x)(1 - \sin x)}{1 - \sin x} =$$

$$1 - (1 + \sin x) =$$

$$-\sin x = -\sin x$$

$$10. \quad \frac{\sec x}{\sin x} - \frac{\sin x}{\cos x} = \cot x$$

$$\frac{1}{\cos x \sin x} - \frac{\sin x}{\cos x \sin x} =$$

$$\frac{1 - \sin^2 x}{\cos x \sin x} =$$

$$\frac{\cos^2 x}{\cos x \sin x} =$$

$$\frac{\cos x}{\sin x} =$$

$$\cot x = \cot x$$

$$11. \quad \frac{1 - \cos^2 x}{\tan x} = \sin x \cos x$$

$$\frac{\sin^2 x}{\tan x} =$$

$$\sin^2 x \cdot \frac{\cos x}{\sin x} =$$

$$\sin x \cos x = \sin x \cos x$$