

Trig. Identities Worksheet #2

Name \_\_\_\_\_

Date \_\_\_\_\_

Prove each identity.

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

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

3. 
$$\cos^2 x = \frac{\csc x \cos x}{\tan x + \cot x}$$

4. 
$$\frac{\sin^4 x - \cos^4 x}{\sin^2 x - \cos^2 x} = 1$$

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

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

$$7. \quad \tan^2 \theta = \csc^2 \theta \tan^2 \theta - 1$$

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

$$9. \quad \frac{\csc \beta}{\sin \beta} - \frac{\cot \beta}{\tan \beta} = 1$$

$$10. \quad \sin^4 x - \cos^4 x = 1 - 2 \cos^2 x$$

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

$$12. \quad \tan^2 x + 1 + \tan x \sec x = \frac{1 + \sin x}{\cos^2 x}$$