

# PC 12 LG 10 Worksheet (Trig. Identity Proofs 2)

Copy and prove the following identities:

1. 
$$\frac{\cos \theta + \sin \theta \tan \theta}{\sin \theta \sec \theta} = \csc \theta$$



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



3. 
$$\frac{\sin \theta + \tan \theta}{1 + \cos \theta} = \frac{\sin 2\theta}{2 \cos^2 \theta}$$



Copy and prove the following identities:

4. 
$$\frac{\cot \theta}{\csc \theta - 1} = \frac{\csc \theta + 1}{\cot \theta}$$



$$\frac{\sin 2\theta}{\cos \theta} + \frac{\cos 2\theta}{\sin \theta} = \csc \theta$$



6. 
$$\frac{\sin 2\theta}{2 - 2 \cos^2 \theta} = \cot \theta$$



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Copy and prove the following identities:

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



Copy and prove the following identities:

10. 
$$\frac{\cot\theta-1}{1-\tan\theta} = \frac{\csc\theta}{\sec\theta}$$



8. 
$$\frac{\cos 2\theta}{\sin\theta} = \frac{\cot^2\theta-1}{\csc\theta}$$



11. 
$$\frac{\sin 2\theta}{1+\cos 2\theta} = \frac{\sec^2\theta-1}{\tan\theta}$$



9. 
$$\sin 2\theta(\cot\theta + \tan\theta) = 2\sin^2\theta + 2\cos^2\theta$$



12. 
$$\frac{2\cos\theta + 2\cos^2\theta}{\sin 2\theta} = \frac{\sin\theta}{1-\cos\theta}$$

