

# PC 12 LG 10 Worksheet (Trig. Identity Proofs 1)

Copy and prove the following identities:

$$1. \frac{\sin\theta(\sec\theta - \csc\theta)}{\tan\theta - 1} =$$

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

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$$3. \frac{\sin^4\theta - \cos^4\theta}{2\sin^2\theta - 1} =$$

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Copy and prove the following identities:

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

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

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$$6. \frac{1 + \sin\theta}{1 - \sin\theta} = \frac{\csc\theta + 1}{\csc\theta - 1}$$

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Copy and prove the following identities:

$$7. \quad \frac{\sin\theta + \cos\theta \tan\theta}{\cot\theta} = 2\tan\theta \sin\theta$$

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$$8. \quad \frac{\sin\theta}{1 + \cos\theta} = \frac{1 - \cos\theta}{\sin\theta}$$

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$$9. \quad \frac{\tan\theta}{\sec\theta + 1} = \frac{\sec\theta - 1}{\tan\theta}$$

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Copy and prove the following identities:

$$10. \quad \frac{2}{1 + \sin\theta} + \frac{2}{1 - \sin\theta} = 4\sec^2\theta$$

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

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$$12. \quad \frac{1 - \cos\theta}{\sin\theta} = \frac{\tan\theta - \sin\theta}{\tan\theta \sin\theta}$$

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