

## 2.6 Trig Identities Worksheet #2

MCR3U

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Prove each of the following identities

1)  $\cos\theta \times \tan\theta = \sin\theta$

2)  $\frac{\cot\theta}{\tan\theta} = \frac{1-\sin^2\theta}{1-\cos^2\theta}$

3)  $\cot^2\theta = \frac{\cos^2\theta}{1-\cos^2\theta}$

4)  $\frac{\csc\theta}{\sec\theta} = \cot\theta$

5)  $(\sin\theta + \cos\theta)^2 = 1 + 2 \sin\theta \cos\theta$

6)  $2 \sin^2\theta - 1 = \sin^2\theta - \cos^2\theta$

7)  $\frac{1}{\sin^2\theta} + \frac{1}{\cos^2\theta} = \frac{1}{\sin^2\theta \cos^2\theta}$

8)  $\cos^2\theta = \sin^2\theta + 2 \cos^2\theta - 1$

9)  $\tan\theta = \tan^2\theta \times \cot\theta$

10)  $\sec^2\theta + \csc^2\theta = \sec^2\theta \times \csc^2\theta$

11)  $\frac{1}{1+\sin\theta} + \frac{1}{1-\sin\theta} = 2 \sec^2\theta$

12)  $\tan^2\theta - \sin^2\theta = \sin^2\theta \times \tan^2\theta$

13)  $\frac{1+2\sin\theta \cos\theta}{\sin\theta+\cos\theta} = \sin\theta + \cos\theta$

14)  $\frac{\sec\theta+1}{\sec\theta-1} + \frac{\cos\theta+1}{\cos\theta-1} = 0$

15)  $\frac{\csc\theta}{\csc\theta-1} + \frac{\csc\theta}{\csc\theta+1} = 2 \sec^2\theta$