

4.6 Trig Identities Worksheet #1

MCR3U

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1) Prove each identity

a) $\sin\theta = \cos\theta \tan\theta$

b) $\csc\theta = \sec\theta \cot\theta$

c) $\cos\theta = \sin\theta \cot\theta$

d) $\sec\theta = \csc\theta \tan\theta$

2) Prove each identity

a) $1 + \csc\theta = \csc\theta(1 + \sin\theta)$

b) $\cot\theta \sin\theta \sec\theta = 1$

c) $\cos\theta(\sec\theta - 1) = 1 - \cos\theta$

d) $1 + \sin\theta = \sin\theta(1 + \csc\theta)$

3) Prove that $1 - \sin^2\theta = \sin\theta \cos\theta \cot\theta$

4) Prove that $\csc^2\theta = \cot^2\theta + 1$

5) Prove that $\frac{\cos\theta}{1+\sin\theta} = \frac{1-\sin\theta}{\cos\theta}$

6) Prove that $\frac{\cos\theta}{1-\sin\theta} + \frac{\cos\theta}{1+\sin\theta} = \frac{2}{\cos\theta}$

7) Prove that $\csc^2\theta \cos^2\theta = \csc^2\theta - 1$

8) Prove that $\tan^2\theta - \sin^2\theta = \sin^2\theta \tan^2\theta$