Name _____
Date _____ Period _____

Prove the following identities

$$\sin\theta\,(1+\cot^2\theta)=\csc\theta$$

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

Prove the following identities

$$\csc^2\theta\,\sin^2\theta-\sin^2\theta=\cos^2\theta$$

Prove the following identities

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

Prove the following identities

$$(\sin\theta + \cos\theta)^2 + (\sin\theta - \cos\theta)^2 = 2$$

Prove the following identities

$$\tan\theta + \cot\theta = \sec\theta \csc\theta$$

Prove the following identities

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