

$$1) \quad \sin^2\beta + \tan^2\beta + \cos^2\beta = \sec^2\beta$$

$$\tan^2\beta + 1 =$$

$$\sec^2\beta = \sec^2\beta \quad \checkmark$$

$$2) \quad \cos^2x - \sin^2x = 2\cos^2x - 1$$

$$\cos^2x - (1 - \cos^2x) =$$

$$\cos^2x - 1 + \cos^2x =$$

$$2\cos^2x - 1 = 2\cos^2x - 1 \quad \checkmark$$

Name: _____ # _____

$$3) \sin^2 y (\csc^2 y + \sec^2 y) = \sec^2 y$$

$$\sin^2 y \left(\frac{1}{\sin^2 y} + \frac{1}{\cos^2 y} \right) =$$

$$\frac{\sin^2 y}{\sin^2 y} + \frac{\sin^2 y}{\cos^2 y} =$$

$$1 + \tan^2 y =$$

$$\sec^2 y = \sec^2 y \quad \text{''}$$

$$4) \sec^2 \theta + \csc^2 \theta = \sec^2 \theta \csc^2 \theta$$

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

$$\frac{\sin^2 \theta}{\cos^2 \theta \sin^2 \theta} + \frac{\cos^2 \theta}{\cos^2 \theta \sin^2 \theta}$$

$$\frac{\sin^2 \theta + \cos^2 \theta}{\cos^2 \theta \sin^2 \theta}$$

$$\frac{1}{\cos^2 \theta \sin^2 \theta}$$

$$\frac{1}{\cos^2 \theta} \cdot \frac{1}{\sin^2 \theta}$$

$$\sec^2 \theta \cdot \csc^2 \theta = \sec^2 \theta \csc^2 \theta \quad \text{''}$$