Pythagorean Identities

    a. $\sin^2\theta + \cos^2\theta = 1$
    b. $1 + \tan^2\theta = \sec^2\theta$
    c. $1 + \cot^2\theta = \csc^2\theta$

From (a) $\sin^2\theta = 1 - \cos^2\theta$ i.e. $\cos^2\theta = 1 - \sin^2\theta$

These are called Pythagorean identities, because, as we will see in their proof, they are the trigonometric version of the Pythagorean theorem. The two identities are simply different versions of (a).

The first shows how we can express sin θ in terms of cos θ; the second shows how we can express cos θ in terms of sin θ.

Note: $\sin^2\theta$ "sine squared theta" means $(\sin\theta)^2$.

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