

### Guidelines for Establishing Identities

- It is almost always preferable to start with the side containing the more complicated expression.
- Rewrite sums or differences of quotients as a single quotient.
- Sometimes rewriting one side in terms of sines and cosines will help.
- Always keep your goal in mind.

$$3 \sin^2 \theta + 4 \cos^2 \theta =$$

$$3 + \cos^2 \theta$$

$$\tan^2 \theta \cos^2 \theta + \cot^2 \theta \sin^2 \theta = 1$$

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

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