

## Math Analysis Trig Identity Worksheet 3

### 4.1 Identities

Prove the following identities.

1.  $\sin x(\cot x + \cos x \tan x) = \cos x + \sin^2 x$

2.  $\sec x - \cos x = \sin x \tan x$

3.  $\cot^2 x + \csc^2 x = 2 \csc^2 x - 1$

4.  $\sin x \cos x \tan x = 1 - \cos^2 x$

5.  $\sin y + \sin y \cot^2 y = \csc y$

6.  $\frac{1}{1 - \cos x} + \frac{1}{1 + \cos x} = 2 \csc^2 x$