

4-3 Continued

Prove that the given equation is an identity.

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

2.  $\cos^2 \theta + \tan^2 \theta \cos^2 \theta = 1$

3.  $(5 \cos x - 4 \sin x)^2 + (4 \cos x + 5 \sin x)^2 = 41$

$$4. \quad \frac{\cos x}{\sec x - 1} - \frac{\cos x}{\tan^2 x} = \cot^2 x$$

$$5. \quad \sec \theta + \tan \theta = \frac{1}{\sec \theta - \tan \theta}$$