

1. Verify the identity  $\sec(x) - \cos(x) = \sin(x) \tan(x)$
2. Start with the identity  $\sin^2(x) + \cos^2(x) = 1$  to get the corresponding identity with  $\tan^2(x)$
3. Use the substitution  $x = 2 \tan(\theta)$  to rewrite  $\sqrt{x^2 + 4}$  as a trigonometric function of  $\theta$
4. Show that  $\frac{1}{1 + \sin(x)} + \frac{1}{1 - \sin(x)} = 2 \sec(x)$