

Pre Calculus - 5.2 Review

Prove the Identity

- ① $\frac{1}{\tan B} + \tan B = \sec B \csc B$
- ② $\frac{\sec^2 \theta - 1}{\sin \theta} = \frac{\sin \theta}{1 - \sin^2 \theta}$
- ③ $\frac{\sec x + 1}{\tan x} = \frac{\sin x}{1 - \cos x}$
- ④ $\tan^4 t + \tan^2 t = \sec^4 t - \sec^2 t$
- ⑤ $\frac{1}{1 - \cos x} + \frac{1}{1 + \cos x} = 2 \csc^2 x$
- ⑥ $\frac{1 + \cos x}{1 - \cos x} = \frac{\sec x + 1}{\sec x - 1}$
- ⑦ $\frac{\sin t}{1 + \cos t} + \frac{1 + \cos t}{\sin t} = 2 \csc t$
- ⑧ $\tan x + \sec x = \frac{\cos x}{1 - \sin x}$

Expand to Prove

- ⑨ $\sin^5 x = (1 - 2 \cos^2 x + \cos^4 x) \sin x$
- ⑩ $\sin^5 x \cos^3 x = (\cos^2 x - 2 \cos^4 x + \cos^6 x) \sin x$