

Lab 7: Trig Identities Activity

Verify each identity, showing each step explicitly. **That means that at each step, you should be using *one algebraic technique or one identity*.** You must transform one side into the other, but you may choose which direction you'd like to go.

You will be graded on the *accuracy and clarity* of your work—i.e., is it both correct and easy to follow? **ADVICE: You may want to consider writing a draft on a separate page first.** Each problem is worth 6 points (4 points for accuracy and 2 for clarity), for a total of 36 points.

1.
$$\frac{\cos u \sec u}{\tan u} = \cot u$$

2.
$$\frac{1}{1-\sin^2 y} = 1 + \tan^2 y$$

3.
$$\frac{1-\cos x}{\sin x} = \frac{\sin x}{1+\cos x}$$
 (Note: Don't cross-multiply!)

4. $\tan \theta + \cot \theta = \sec \theta \csc \theta$

5. $\sin^4 \theta - \cos^4 \theta = 2 \sin^2 \theta - 1$

6. $\frac{\cos^2 t + \tan^2 t - 1}{\sin^2 t} = \tan^2 t$

(Hint: Consider breaking the left side into three fractions)