Quiz 8
Due: 22 October 2024

Answer the questions in the spaces provided. **Show all of your work and circle the answer you would like to have graded for each question.**

Name: _____

1. Verify each of the following identities:

   a.) $\cos(\theta) + \tan(\theta) \cdot \sin(\theta) = \sec(\theta)$;

   b.) $\dfrac{1 + \sin^2(x)}{\cos^2(x)} = 1 + 2\tan^2(x)$;

   c.) $\dfrac{\sin^2(-\theta) - \cos^2(-\theta)}{\sin(-\theta) - \cos(-\theta)} = \cos(\theta) - \sin(\theta)$.

2. Verify that

$$\csc(\theta) \cdot \cos(\theta) \cdot \tan(\theta) = (1 - \cos^2(\theta))(1 + \cot^2(\theta)).$$

(*Hint*: Show that both sides simplify nicely to the same number.)

3. Verify that

$$\frac{\sec(x) + \tan(x)}{\cot(x) + \cos(x)} = \sec(x) \cdot \tan(x).$$