

Quiz 6
Due: 7 March 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. Give an angle θ such that $(\sin(\theta) + \cos(\theta))^2 = 1 + 2 \cos(\theta)$.

2. Suppose θ is an acute angle. Which is bigger: $\frac{\cos(\theta - \frac{\pi}{2})}{\sin(-\theta)}$ or $\frac{1 - \sin^2(-\theta)}{\cos^2(\theta)}$?

3. Justify whether the following equality is True or False for any $-\frac{\pi}{2} < x < \frac{\pi}{2}$:

$$\sin(x) \cdot \tan(x) + \cos(x) = \sec(x).$$

4. Suppose x is an acute angle. Show that each of the following are equal to either 0 or 1:

a.) $(1 - \cos^2(x))(1 + \cot^2(x))$;

b.) $\cos^4(x) + 2 \cos^2(x) \sin^2(x) + \sin^4(x)$;

c.) $\csc(x)(\sec(x) - \cos(x)) - \tan(x)$.