

Week 13 Math 1508 Worksheet

1. [sec 5.1]: Rewrite the following expression in terms of $\sin \theta$ and $\cos \theta$.
Reduce your answer to $\tan \theta$.

$$\frac{\sec^2 \theta (\cot \theta)}{\csc \theta}$$

2. [sec 5.2-5.5]: Verify the identity

a. $\frac{1}{\cos x+1} + \frac{1}{\cos x-1} = -2 \csc x \cot x$

b. $\cos(\pi - \theta) + \sin\left(\frac{\pi}{2} + \theta\right) = 0$

c. $(\sin x + \cos x)^2 = 1 + \sin 2x$

3. [sec 5.3]: Solve the equation

a. $2\cos\frac{x}{2} - \sqrt{2} = 0$

b. $2 \sec^2 x + \tan^2 x - 3 = 0$

4. [sec 5.5]: Solve the equation

$$\tan 2x - 2 \cos x = 0$$

5. [sec 6.1-6.2]: The angles of elevation to an airplane from two points A and B on level ground are 55° and 72° , respectively. The points A and B are 2.2 miles apart, and the airplane is east of both points in the same vertical plane. Find the altitude of the plane.

6. [6.1-6.2] A group of hikers is planning a hike from Montgomery to Pattonville. They calculate the distances shown using a map, using Bradleyton for reference since it is due east of Montgomery. What is the measure of angle M?

