

## Quiz Review – Trig Identities and Equations

Verify the following identities.

1.  $\sin^2 \theta + \tan^2 \theta + \cos^2 \theta = \sec^2 \theta$

2.  $\frac{1}{1 - \sin \theta} + \frac{1}{1 + \sin \theta} = 2 \sec^2 \theta$

3.  $\frac{1}{\tan \theta + \cot \theta} = \sin \theta \cos \theta$

4.  $\sin \theta + \cos \theta = \frac{\sin \theta}{1 - \frac{\cos \theta}{\sin \theta}} + \frac{\cos \theta}{1 - \frac{\sin \theta}{\cos \theta}}$

5.  $\frac{1}{\tan \theta - \sec \theta} + \frac{1}{\tan \theta + \sec \theta} = -2 \tan \theta$

Solve the following equations. Give all possible values.

6.  $\sin^2 \theta = \frac{1}{2}$

7.  $\tan \theta = 0$

8.  $2 \cos^2 \theta - 1 = 0$

9.  $\csc^2 \theta = 2$

10.  $\tan^3 \theta + 2 \tan^2 \theta + \tan \theta = 0$

11.  $3 \cos \theta + 3 = 2 \sin^2 \theta$

12.  $2 \cos^2 \theta + 2 \sin \theta + \sqrt{3} \sin \theta = 2 + \sqrt{3}$

13.  $\sqrt{2} \cos 5\theta = 1$

14.  $2 \sin 4\theta + 1 = 2$