Double Angles - Solving & Proving

Date_____ Period____

Solve each equation for $0 \le \theta < 2\pi$**.**

1) $3\sin 2\theta = 4\sin 2\theta + \sin \theta$

2) $2 = 3\cos \theta - \cos 2\theta$

3) $-\sin^2 2\theta + 2\sin^2 \theta = 0$

Verify each identity.

4) $\sec^2 x - 2\cos^2 x = \tan^2 x - \cos 2x$

5) $\dfrac{1}{1 + \cos 2x} = \dfrac{\sec^2 x}{2}$

6) $\dfrac{\cos 4x + 1 - \cos 2x}{\cos 2x} = 2\cos 2x - 1$