Name: _____ M$6 Homework 27

1. Solve for all values of x in the interval $0° \le x < 360°$.
$2\sin^2 x + 3\cos x - 3 = 0$

1.

2. Solve for all values of x in the interval $0° \le x < 360°$. Round to the *nearest degree*.
$5\cos^2 x - 6\sin x = 0$

2.

3. Solve for all values of x in the interval $0° \le x < 360°$. Round to the *nearest degree*.
$5\sec^2 x - 11\tan x - 4 = 0$

3.

4. Prove the identity: $\dfrac{1+\sec x}{\csc x} = \sin x + \tan x$

4.

5. Prove the identity: $\dfrac{\sec^2 x - \tan^2 x}{2\sin^2 x + 2\cos^2 x} = \dfrac{1}{2}$

5.

6. The tide at a boat dock can be modeled by the equation $y = -2\cos\left(\frac{\pi}{6}t\right) + 8$, where t is the number of hours past noon and y is the height of the tide, in feet. For how many hours between $t = 0$ and $t = 12$ is the tide at least 7 feet? [The use of the accompanying grid is optional.]