Homework 17

(due December 13)

Math 130 *Kovitz* 2016

1. Find all solutions with $0 \leq x \leq 2\pi$ for $\sin 2x = -\cos x$.

2. Find all solutions of $2\tan^2 x = 1 + \sec x$ in the interval $[0, 2\pi)$.
   (Get the algebraically-assisted result.)

   Afterwards, if you want to check the answers, write the two non-exact solutions to accuracy of ten decimals. Then plug all 3 solutions into the equation and show that it is true.

3. Use the Law of Cosines to solve the triangle with sides of lengths 1 and $\sqrt{3}$, and an included angle of $150°$ between them. (Round angles to three decimal places.)

   Hint. After finding the third side, consider: Which is the longest side? So the largest angle will be between which two sides? Which is the shortest side? So the smallest angle will be between which two sides? Is the third side longer than $1 + \sqrt{3}$? Is that what was necessary?