QUIZ 3 - MATH 131                               Thursday, September 29

YOUR NAME:_____                George Voutsadakis

Read each problem **very carefully** before starting to solve it. Each problem is worth 5 points. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points. GOOD LUCK!!

1. Suppose that you know that $\theta$ is in quadrant II. Please express $\tan\theta$ as a function of $\cos\theta$ **only**. (Recall that we did a similar problem in class.)

2. Check by algebraic means (without graphing) whether the function

$$f(x) = 2012\ x - \tan x$$

is odd. Please, show all your steps.

3. In this problem you are going to be guided through the process of graphing a function using transformations.

(a) Graph $f(x) = -\sin x$ by putting a few points with labels on your graph.

(b) If one replaces x by $4x - \frac{\pi}{2}$ in $f(x)$, one obtains the function $g(x) = -\sin\left(4x - \frac{\pi}{2}\right)$. In that case, one may be following one of the following two transformations:

$x \to 4x$ _____          $x \to x - \frac{\pi}{2}$ _____

$\to 4\left(x - \frac{\pi}{8}\right)$ _____          $\to 4x - \frac{\pi}{2}$ _____

Please, write on the provided space what kind of transformation is taking place by the indicated replacement.

(c) Starting from your graph of Part (a) and taking into account your answer of Part (b), graph **carefully** the function

$$g(x) = -\sin\left(4x - \frac{\pi}{2}\right).$$

Please, indicate clearly some $x$ and $y$ coordinates of points through labels on the coordinate axes.