MATH 1 WEEKLY ASSIGNMENT #3
DUE OCTOBER 6

Problem #1

I) Find the inverse of $f(x) = \sqrt{x-3} + 2$.

II) Find the domain and range of both f and the inverse you found in part I.

III) What transformations should we use to plot f starting from the graph of $\sqrt{x}$.

Problem #2

I) Is $f(x) = (\ln(x))^2$ a one–to–one function? If so, find its inverse. Otherwise, find two different real numbers a and b such that $f(a) = f(b)$.

II) Is $f(x) = (x)^3 - 5$ a one–to–one function? If so, find its inverse. Otherwise, find two different real numbers a and b such that $f(a) = f(b)$.

Problem #3

I) Find the largest domain on which $f(x) = (x-3)^2 - 4$ is one-to-one.

II) Find the largest domain containing $x = 0$ on which $f(x) = \sin(x)$ is one-to-one.

III) Find the largest domain containing $x = 0$ on which $f(x) = |\sin(x)|$ is one-to-one.

Problem #4

I) Solve $\ln(2x+1) = 2 - \ln(x)$ for x.

II) Solve $e^{2x-4} = 12$ for x.

III) Solve $x^2 + \log_5(625)x + 256^{\frac{-1}{8}} = 0$ for x. Don't use a calculator.

Problem #5

Sketch a graph of $\frac{1}{2}\sin(3x+5) + 2$. Hint: Write out the necessary transformations in order and then apply them one at a time to the original graph.

Problem #6

I) Solve $\cos(\sin(x)) = 1$ for x.

II) Given that $\theta = \tan^{-1}(\frac{4}{3})$ find $\sin(\theta)$, $\cos(\theta)$, $\sec(\theta)$, and $\csc(\theta)$.

Date: September 30, 2015.