Serial No.:_____ Student Name:_____ Student Number: _____

Instructor: M. Z. Abu-Sbeih Math 101- Q3 Date: 6 – 4 – 2014

Problem 1: (7 points) If $y^3 + x^2 y = 2$, find y' and y'' at $(1,1)$

Problem 2: (6 points) If $y = \tan^{-1}\sqrt{x^2 - 1} + \csc^{-1} x$, find $\frac{dy}{dx}$.

Problem 3: (7 points) If $y = (1+x)^{\sin x}$, find $\frac{dy}{dx}$.

Problem 4: (7 points) If $y = \log_2 \frac{x^2 e^x}{2\sqrt{x+1}}$ find $\frac{dy}{dx}$.

Problem 5: (7 points) If $y = \tan^2(\sin^{-1}(x^2 - 1))$ find $\frac{dy}{dx}$.

Problem 6: (6 points) Find the limit if it exists $\lim_{\theta \to \pi/4} \frac{\tan\theta - 1}{\theta - \pi/4}$