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

Instructor: M. Z. Abu-Sbeih Math - 132.1 Quiz No. 2 Date: 29-9-2013.

Problem 1: (8 points) (1) Use the definition of the derivative to find $f'(x)$ for the function $f(x)=\frac{1}{x+1}$.

(2) Find the **slope of the tangent** line to the curve $y=\frac{x^2+\sqrt{x}+1}{x}$ at $x=1$.

Problem 2: (8 points) Find the $\frac{dy}{dx}$ For each of the following functions:

(1) $y=\frac{x^2+3}{(x^3+x)}+\pi^3$

(2) $y = u^2 + u$ and $u = x + \frac{1}{x}$

Problem 3: (8 points) (1) Find the rate of change in the volume V of a sphere with respect to the radius r when $r = 7$. (Note that $V = \frac{4}{3}\pi r^3$)

(2) An object is thrown up from the top of a building so that its distance (in feet) from the ground is $s(t) = 32t - 2t^2 + 72$, find the velocity of the object when it hits the ground.