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

Instructor: M. Z. Abu-Sbeih Math - 132.1 Quiz No. 1 Date: 15-9-2013.

Problem 1: (12 points) Consider the function $f(x) = \dfrac{x}{x - x^2} + 5$

(a) If it exists, find the limit. If it does not exist, show why. Use the symbols ∞ *or* $-\infty$ as appropriate.

(i) $\lim_{x \to 0} f(x)$

(ii) $\lim_{x \to 1} f(x)$

(iii) $\lim_{x \to \infty} f(x)$

(b) Find all values of x at which $f(x)$ is discontinuous.

Problem 2: (4 points) Find all values of C which will make the following function continuous.

$$f(x)=\begin{cases}4-Cx & if\ x\le 1,\\ x^2+C-1 & if\ x>1.\end{cases}$$

Problem 3: (4 points) Find all points of discontinuity of the function $f(x)=\dfrac{x^2+5x+6}{x^2-9}$ and identify the type of each one.