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

Instructor: M. Z. Abu-Sbeih Math - 132.1 Quiz No. 1 Date: 2-2-2016.

Problem 1: (18 points) Find the limit if it exists. If it does not exist, show why. Use the symbols ∞ *or* $-\infty$ as appropriate.

(i) $\lim_{x \to 3} \dfrac{x^2 - 2x - 3}{x^2 + 2x - 15}$

(ii) $\lim_{x \to 6} \dfrac{\sqrt{x-2} - 2}{x - 6}$

(iii) $\lim_{x \to -\infty} \dfrac{3 - 2x - 2x^3}{7 - 5x^3 + 2x^2}$

Problem 2: (22 points)

(a) Find all values of A which will make the following function continuous.

$$f(x)=\begin{cases}1-Ax^2 & if \;\; x \le 2,\\ 2A-x & if \;\; x > 2.\end{cases}$$

(b) Find all points of discontinuity of the function $f(x)=\dfrac{x-1}{x^2-1}$ if any exists and state the type of each one.

(c) If $f(x)=x^2-x$, find $\lim\limits_{h\to 0}\dfrac{f(x+h)-f(x)}{h}$