MATH 101 Quiz#2, Time: 30 mins

Student's Name: _____ ID: _____Section No: _____

Q.No.1:- Find a number δ such that

if $|x-4| < \delta$ then $\left|\sqrt{x}-2\right| < 0.5$

Q.No.2:- Let

$$f(x) = \begin{cases} \dfrac{(x-1)(x+3)}{(x-1)^n}, & x > 1 \\ x^2 + 3, & x \leq 1 \end{cases}$$

where n is a nonnegative integer, $(n \geq 0)$

(a) Use limits to find the value(s) of n for which the function is continuous at every x.

(b) Use limits to find the value(s) of n for which the function has infinite discontinuity at $x = 1$.