King Fahd University of Petroleum & Minerals Department of Mathematics and Statistics

$\begin{array}{c} \textbf{Math101/Calculus I} \\ \textbf{Quiz} \ 5 \end{array}$

One Problem, December 10^{th} , 2015^{-1}

Problem 1 (15 points)

Consider the following function:

$$f(x) = x^3 - 3x^2 + 1.$$

- a) Compute the first derivative f'(x).
- b) Find the critical numbers.
- c) Draw the sign and variation tables of f' and f.

d) Find all local or absolute maxima or minima of f.

e) Study the concavity of f.

 $^{^{1}\}mathrm{The~quiz~lasts~20~minutes}.$