Math 17
Winter 2015
Project 1 Preliminary Assignment 1

This preliminary assignment is graded credit or no credit (or partial credit for late or incomplete submissions). To get full credit, you need only submit a complete assignment, with all help and sources correctly acknowledge and cited, by the due date. This grade will be part of your grade for your first project. When I return your assignment, pay attention to comments and corrections, because your final draft will, of course, be graded.

This assignment is due at the beginning of class on Monday, January 12.

Assignment: Write up a proof of the following proposition as if it were part of a paper. You need not include an abstract, introduction, context, discussion, etcetera; simply give the statement of the proposition and give a proof. You must, however, correctly acknowledge and/or cite any help you receive and any sources you use, and include a list of references. (You should also include a title of some kind, and, of course, your name.)

In particular, if you use any theorems or facts from calculus, you must find them in some appropriate source (such as your calculus textbook), cite that source, and include that source in your list of references.

The sample paper *Lmits of Polynomials at Infinity* is an example of how a mathematical paper should be written.

This assignment may be written by hand. Your second preliminary assignment will be to type this in LaTeX, making changes in response to any corrections or comments I make, and will be due on Tuesday, January 20. We will have an introduction to LaTeX in class on Friday, January 16.

Proposition: Suppose $P(x)$ is a polynomial with real number coefficients, and a, b, and c are real numbers such that $a < b < c$, $P(a) > 0$, $P(b) \leq 0$, and $P(c) > 0$. Then there is a number x in the interval $[a, c]$ such that $P'(x) = 0$.