Math 141, Problem Set #11
(due **in class Mon.** , 12/2/13)

Note: To get full credit for a problem, it is not enough to give the right answer; you must explain your reasoning.

Stewart, section 4.3, problems 14, 24, 50(ab), 61, 62, 63, 64. Note: For problem 4.3.14, do NOT expand the polynomials into powers of x; instead, keep them in factored form, and you'll have a much easier time finding the roots of the derivative.

Stewart, section 4.4, problems 12, 20, 44, 48.

Stewart, section 4.5, problems 24, 32, 36, and 58. Hints: For problem 24, use implicit differentiation. For problem 58, express θ as a difference of two angles, each of which can be expressed as the arctangent of some simple expression.

Also, do the following additional problems. Keep in mind that the derivative of a differentiable function is not always continuous, so if a problem asks you to assume that some function f is differentiable, you should NOT assume that f' is continuous unless the problem explicitly authorizes you to assume this.

A. Let $f(x) = \sqrt{(x^2-1)^2}$.

   (a) Analyze the behavior of f in the vicinity of $x = 0$ using the First Derivative Test.

   (b) Analyze the behavior of f in the vicinity of $x = 0$ using the Second Derivative Test.

Please don't forget to write down on your assignment **who you worked on the assignment with** (if nobody, then write "I worked alone"), and write down on your time-sheet **how many minutes you spent on each problem** (this doesn't need to be exact).