Math 141, Problem Set #10
(due **in class** Fri., 11/22/13)

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

Stewart, section 4.1, problems 28, 48, 58, 64. (For problem 4.1.64, your reasoning should use the definition of maxima and minima. Also note that you cannot assume that the function is differentiable, since this is not part of the statement of the problem, so Fermat's Theorem etc. are not relevant. You should not even assume that f is continuous!)

Stewart, section 4.2, problems 22, 24, 26, 27, 29. You are to solve problem 27 using the result of problem 26, and not by using algebra or some other method.

Also, do the following additional problems.

A. True or false? (and why?): "If f is continuous on a closed interval $[a, b]$, then f attains a local maximum value $f(c)$ and a local minimum value $f(d)$ at some numbers c and d in $[a, b]$."

B. Use the Mean Value Theorem to show that the function $2x + \sin x$ is invertible. (Hint: Given real numbers $x_1 < x_2$, apply the Mean Value Theorem to the function $2x + \sin x$ on the interval $[x_1, x_2]$.)

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).