

Math 141, Problem Set #8
(due **in class** Fri., 11/8/13)

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

Stewart, section 2.8, problems 4, 20, 22, 30.

Stewart, section 3.1, problems 18, 26, 28, 30.

Stewart, section 3.2, problems 18, 22, 34, 78. For problem 34, note that a picture of the graph of a function is not by itself a proof that the function is one-to-one; also keep in mind that the stated domain of f is $\{x \in \mathbf{R} : x > 1\}$.

Stewart, section 3.3, problems 46, 56, 64, 66(ab), 70, 74.

Also:

- A. Sketch the curve given by $f(x) = \sqrt{x^2}$.
- B. Sketch the curve given by $f(x) = (\sqrt{x})^2$.
- C. Find the inverse function of $f(x) = 3x + |x|$. (For partial credit, express it as a piecewise-linear function; for full credit, express it via a single formula involving the absolute value function.)
- D. Prove: If f is odd and one-to-one then f^{-1} is odd.
- E. Discuss the limit $\lim_{x \rightarrow \pi^+} \ln(\sin x)$ (compare with problem 74 from section 3.2).

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).