

CALCULUS 153: FINAL REVIEW SHEET

You should know all the theorems and definitions that were given in class, i.e. anything I specifically highlighted as a definition or a theorem. The one exception is Taylor's formula for remainder (Thm 12.6.1); you don't need to know that one. However, I do want you to be able to state Lagrange's formula for remainder.

You should also know the list of important limits I stated in class, the list of antiderivatives I stated in class, and the list of Taylor series expansions that I stated in class.

Here are the proofs that you should know:

- (1) The proof of theorem 11.1.2 (if $M = \sup S$ and $\epsilon > 0$ then there is $s \in S$ such that $M - \epsilon < s$).
- (2) The proof of theorem 11.3.6 (a nondecreasing sequence which is bounded above converges to the least upper bound of its range).
- (3) The proof of theorem 11.3.7 (i) ($\lim(a_n + b_n) = \lim a_n + \lim b_n$).
- (4) The proof that $x^n/n! \rightarrow 0$.
- (5) The proof that $x^{1/n} \rightarrow 1$ for $x > 0$.
- (6) The proof of the k -th term test for divergence (if $\sum a_k$ converges then $a_k \rightarrow 0$).

Also, any of the homework problems are fair game (I will update the solutions to selected homework problems shortly).