MA530 Discrete Math
Fall 2016
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Topology Homework 2

Due Date: Monday March 13

Instructions: Please submit brief solutions (really, I mean it this time! at most three lines of the page) to Problems 1-10. Submit full, carefully written proofs for #11, #12 and #13. Use only one side of the page and make sure your text is easily readable.

1. Ex. 5 on p152
2. Ex. 8 on p158 (Y/N only)
3. Ex. 1 on p162
4. Ex. 1 on p170
5. Ex. 1 p194
6. Ex. 5(a) on p194
7. Let us, temporarily, call a space X "completely Hausdorff" if for every pair x, y of distinct points in X, there exists a continuous function $f : X \to [0,1]$ with $f(x) = 0$ and $f(y) = 1$. Prove that "completely Hausdorff" implies Hausdorff.
8. Prove that Hausdorff does not imply completely Hausdorff. [and now forget you ever heard the term.]
9. Ex. 7(a) on p199
10. Ex. 12 p152
11. Ex. 9 on p158
12. Ex. 7 on p205
13. Ex. 5 on p213