Math 550A, Homework 2

Closed sets, T_1 and Hausdorff spaces

Due in class, Thursday, 2/13

Reading Read §17 of Munkres.

Exercises (to do on your own)

1. Munkres §17, exercise 16 (only for $\mathbb{R}$, $\mathbb{R}_\ell$ and $\mathbb{R}_K$).
2. Munkres §17, exercise 3
3. Prove: a subspace of a Hausdorff space is Hausdorff.

Problems (to turn in)

1. Munkres §17, exercise 6. (I also suggest doing §17, exercise 7, but you don't need to write it up.)
2. A topological space X is T_1 (as we defined this in the lecture) if and only if all one-point sets $\{x\}$, where $x \in X$, are closed.
3. Prove: a product of Hausdorff spaces is Hausdorff.