Reminder

The first exam, on Chapters 1–4, takes place on February 23 (this Friday).

Please bring your own paper to the exam to write on.

Some review exercises

1. Exercise 1.1.3.
2. In a topological space (X, τ), suppose A is a connected subset. Prove that if $A \subseteq B \subseteq \overline{A}$, then B is connected too. In particular, $\overline{A}$ is connected.
3. Are the product topologies on $(X \times Y) \times Z$ and $X \times (Y \times Z)$ the same?
4. Consider the topology on $\mathbb{N}$ with basis $\{\{2n - 1, 2n\} : n \in \mathbb{N}\}$. Is this space connected? separable? Hausdorff?
5. Do any of the following topologies on $\mathbb{N}$ create homeomorphic spaces?
   Discrete topology; indiscrete topology; finite-closed topology; initial segment topology; final segment topology.

Assignment due next class

Make a list of the main concepts and theorems from Chapters 1–4. [Not to hand in.]