Homework due Thursday, November 2, at 3:00 pm.

A. Show that every closed subset of $\mathbb{R}$ is an intersection of countably many open sets.

(Hint: Say $A \subset \mathbb{R}$ is closed subset. For each $n$ consider $O_n = \cup_{a \in A} (a - \frac{1}{n}, a + \frac{1}{n})$.
Show that $\overline{A} = \cap_{n=1}^{\infty} O_n$ and conclude.)

B. Rudin, Chapter 2 (page 43), problems #12, 14, 15, 23, 24.