Read Sections §23 and §24 in Munkres. Then do the following exercises.

§23: 1, 2, 4, 11.

§24: 1, 7, 10.

Extra Exercise: Let $X \subset \mathbb{R}^2$ be given by $X = \bigcup_{n \in \mathbb{N}} L_n \cup \{(0,0),(0,1)\}$, where $L_n = \{1/n\} \times [0,1]$. Give $X$ the subspace topology. Suppose now that $C$ is a subset of $X$ which is both open and closed in $X$. Prove that if $(0,0) \in C$, then $(0,1) \in C$.

This assignment is due Wednesday, November 25.