1. Finish the proof from class that a space is Hausdorff if and only if sequences have unique limits. We proved that in Hausdorff spaces, limits are unique. Prove the other direction, and go after a short proof.

2. Suppose $A \subseteq X$. Show $\overline{A^c} = (\mathrm{Int}(A))^c$.

3. Munkres 17.6

4. Munkres 17.19

5. Munkres 17.14

6. 16.4

7. Let $X = \{x \in \mathbb{R}^2 : 1 < |x| < 2\}$. Let $Y = \{(a, b, c) \in \mathbb{R}^3 : a^2 + b^2 = 1\}$. Show that X and Y (each with the subspace topology) are homeomorphic. *Hint:* You might want to show that $(1, 2)$ is homeomorphic to $\mathbb{R}$ separately.

8. 18.4

9. 18.10