HW3, due to 10/17

1. Page 100, Exercise 3, 4.

2. Page 101, Exercise 6 (a) (b), 9, 11, 12, 13.

3. Page 102, Exercise 19 (a) (b) (c) , 20 (a) (b) (c).

* **Bonus**

*1. Page 101, Exercise 6 (c).

*2. Page 102, Exercise 19 (d).

*3. Let X be the set $\{1, 2, 3\}$ with the topology $\mathscr{T} := \{\emptyset, \{1\}, \{2, 3\}, \{1, .2, 3\}\}$. Show that X is not Hausdorff.