

## Problems in Topology (Math436)

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Read Chapter 7 (end) and Chapter 8,

- (1) Problem 8/page 95
- (2) Problem 9/page 95.
- (3) 2/page 106
- (4) 5/page 106
- (5) (\*) (Two point compactification of  $\mathbb{R}$ ).  
Define a topology  $\mathcal{T}$  on  $\mathbb{R} \cup \{-\infty\} \cup \{+\infty\}$ . So that
  - (a) The restriction of  $\mathcal{T}$  onto  $\mathbb{R}$  is the usual topology
  - (b)  $\mathbb{R} \cup \{-\infty\} \cup \{+\infty\}$  is compact with  $\mathcal{T}$ .
  - (c)  $\mathbb{R}$  is dense in  $\mathbb{R} \cup \{-\infty\} \cup \{+\infty\}$ .