1. Draw a lattice diagram for \((\mathcal{P}(A), \subseteq)\) where \(A = \{1, 2, 3, 4\}\). Explain why \((\mathcal{P}(A), \subseteq)\) is not totally ordered.

2. Draw a lattice diagram for \(\left(\{\{1\}, \{2\}, \{1, 2\}, \{1, 2, 3\}, \{1, 2, 5, 7\}\}, \subseteq\right)\). Does this poset have a greatest element? Does it have a least element? Find all of its maximal elements. Find all of its minimal elements.

3. Prove that a least element in a Poset must be unique (if it exists) (Also for in-class presentation Wednesday, November 19).

4. Consider the lattice \((\mathcal{P}(A), \subseteq)\), and let \(B \subseteq A\) and \(C \subseteq A\). Show that \(A \lor B = A \cup B\) and \(A \land B = A \cap B\). (Also for in-class presentation Wednesday, November 19).

5. Explain misuse of induction from Remark on p. 17 & 18. (Also for in-class presentation Wednesday, November 19)

6. p. 18 # 3

7. p. 18 #6

8. p. 18 #11