Fall 2026, Math 296: Week 13 Preliminary Problems
Due: Thursday, November 19th, 2026
Equivalence Relations and Posets

Preliminary problems. These problems should be completed before discussion on Thursday.

(P1) Recall that a *partition* of a set A is a collection $\{B_i\}$ of nonempty subsets $B_i \subseteq A$ satisfying:

- $B_i \cap B_j = \emptyset$ for all distinct i, j; and
- $A = \bigcup_i B_i$.

List all 5 partitions of the set $A = \{1, 2, 3\}$.

(P2) There are 19 different partial orders on the set $\{1, 2, 3\}$. Draw as many of their Hasse diagrams as you can **without spending more than 5 minutes on this problem**.