Set Partitions

- Read pages 27 through 28 (section 1.5)
- Some key questions to answer:

  1. When do we say for a collection of sets that they are pairwise disjoint? Give examples.
  2. When do we say that a collection of subsets of a set A forms a partition of A? Give examples.
  3. Did you remember in your definition of partition to mention that all the subsets *must* be nonempty?
  4. Study example 1.22
  5. Describe various possible partitions of the integers and of the real numbers. Give at least 3 different partition examples for each. At least one of the partitions for the integers should use only sets of finite cardinality. At least one of the partitions for the reals should use sets that are bounded.
  6. True or False: All sets in a partition must have the same cardinality.
  7. Find all possible partitions of a singleton set $\{x\}$ as well as a two-element set $\{x, y\}$.
  8. True or False: Asking for a partition of a set A is the same as asking for a subset of the powerset $P(A)$ such that not contain the empty set as an element.
  9. Food for thought: What about partitions of the empty set? Are there any?

- Practice problems from section 1.5 (page 34): 1.46, 1.48, 1.54, 1.56