Before beginning this homework assignment, please review the guidelines for submitting homework. Please write down the total amount of time spent working on the assignment at the top of what you turn in. Remember that at least one problem from each assignment must be written in \textit{LaTeX}.

Remember that if you make use of any sources other than the text or class notes you need to cite it.

You should also start thinking about your final paper. The remaining homework assignments in the course are intentionally smaller in order to give you time to work on it.

1. \textbf{Equivalence Relations}

Read Sections 12.1 - 12.6 carefully (especially if you missed class the Mon. before Thanksgiving.)

(1) Do Exercise 12.0.4

(2) Prove Theorem 12.0.8 (This is the first half of a result which shows that equivalence relations and partitions are essentially “the same” concept. Notice that Theorem 12.1.5 is just a rephrasing of 12.0.8)

(3) Prove Theorem 12.1.6.