Math 308: Bridge to Advanced Mathematics
Equivalence relations, due in class on Tuesday, April 16.

Work on these problems and write down your thoughts, **even if you do not have a complete solution. Write clearly** enough for another student in this course, or for yourself in a year, to understand your work.

1. For each relation in examples 7-22 on page 2 of "Equivalence relations," prove that the relation is reflexive or give a counterexample.

2. For each relation in examples 7-22 on page 2 of "Equivalence relations," prove that the relation is symmetric or give a counterexample.

3. For each relation in examples 7-22 on page 2 of "Equivalence relations," prove that the relation is transitive or give a counterexample.

4. Which of the examples on the next page are equivalence relations?
   For each of these, describe the equivalence classes as simply as possible.