

We have covered the terms Reflexive, Symmetric, Antisymmetric, and Transitive in class. This miniproject deals with those terms in a concrete example, as well as the terms Irreflexive and Asymmetric, which are described just prior to exercises 9 and 16 in your book.

- (a) List the sixteen different relations on the set $\{a, b\}$.
- (b) Which of the sixteen relations that you listed above are
 - (i) reflexive?
 - (ii) irreflexive?
 - (iii) symmetric?
 - (iv) antisymmetric?
 - (v) asymmetric?
 - (vi) transitive?

Note: If you label the relations in part (a), then you can refer to those labels in part (b), rather than writing out the relations again.