

We have covered the terms Reflexive, Symmetric, Antisymmetric, and Transitive in class. This miniproject deals with the terms Irreflexive and Asymmetric, as well as the concepts of the inverse and complementary relations of a given relation R . The descriptions and definitions of all of these are in the problem section of your textbook, just above the relevant problems.

- (a) Do #13 in Section 8.1. Explain briefly.
- (b) Do #14 in Section 8.1.
- (c) Do #15 in Section 8.1.
- (d) Do #20 in Section 8.1.
- (e) Do #21 in Section 8.1.
- (f) Do #22 in Section 8.1.
- (g) Do #24 in Section 8.1. Note: Give your answer in a set notation (like R was given in the problem).
- (h) Do #26 in Section 8.1. Note: Just describe them, don't list them.
- (i) Prove: Let R be a relation on a set A and let R^{-1} be its inverse relation. Then R is symmetric if and only if $R = R^{-1}$.