

This miniproject deals with the concepts of reflexivity and irreflexivity (see the definition of irreflexive just prior to exercise 9 in the textbook) and how they interact with certain ways of combining relations.

Suppose that R and S are reflexive relations on a set A . Prove or disprove each of the following statements.

- (a) $R \cup S$ is reflexive.
- (b) $R \cap S$ is reflexive.
- (c) $R \oplus S$ is irreflexive.
- (d) $R - S$ is irreflexive.
- (e) $S \circ R$ is reflexive.