Homework 4 (due in class, Friday 3/11/16)

Let R be a relation and a, b, and c belong to some set. Recall that

aRa for all a means that R is reflexive

if aRb, then bRa for any a and b means that R is symmetric

if aRb and bRc, then aRc for any a, b, c means that R is transitive

1. Suppose aRb means that a and b are cousins. Is R reflexive? symmetric? transitive?

2. Suppose aRb means that a and b are sisters. Is R reflexive? symmetric? transitive?

3. Suppose aRb means that a is the sister of b. Is R reflexive? symmetric? transitive?

4. Suppose aRb means that a and b are musicians and have played in the same band. Is R reflexive? symmetric? transitive?

5. Think of an example of a relation R that hasn't been used in

class that is an equivalence relation – i.e., it is reflexive, symmetric, and transitive.