1. Construct $Q \circ R$ where

$$Q = \{(1, A), (1B), (2, C), (3, A), (3, C)\}$$

and

$$R = \{(A, x), (A, y), (A, z), (B, w), (B, y)\}$$

2. Name some symmetric and non-symmetric familial relationships? What properties are different between the two?
3. Construct a two-person domain in which step-grandfather-inlaw-hood is symmetric

4. Let $R$ be a relation that is both symmetric and antisymmetric. Prove that no element of its domain is related to any other element other than possibly itself.

5. Let $S = \{1, 2, \ldots, 14\}$ with $R(x, y)$ if and only if these two conditions hold

   i. $x$ divides $y$

   ii. There is no number $u$ such that $x$ properly divides $z$ and $u$ properly divides $y$.

   Draw the digraph representation. Is it (anti?) reflexive, symmetric, or transitive?