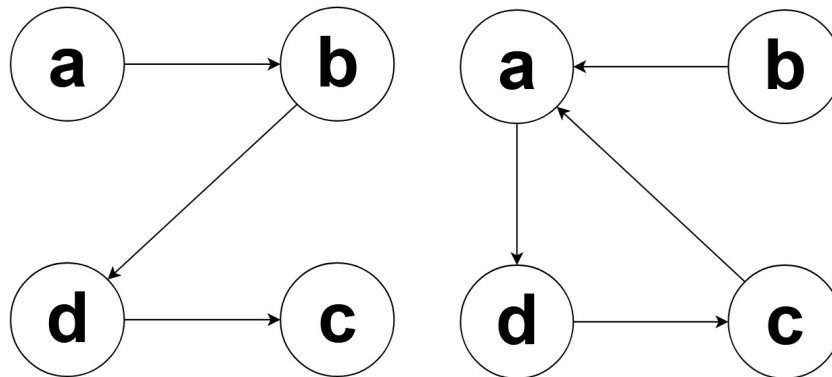


FCS152 Tutorial 6

Relations

1. Let $A = \{\text{Alpha, Beta, Gamma, Delta, Epsilon}\}$. Provide example(s) of relation R on A which are:
 - a) Symmetric and anti-symmetric.
 - b) Reflexive, symmetric, and anti-symmetric.
 - c) Reflexive, symmetric, and transitive.
 - d) Reflexive, anti-symmetric, and transitive.
 - e) Neither symmetric nor anti-symmetric.
2. Consider the following relations:
 - a) **“Has the same number of pages as”** on set of all books. Show that this is an equivalence relation.
 - b) **“Has at least as many pages as”** on set of all books. Show that this is **NOT** an equivalence relation.
3. Draw the R^2 and R^3 of the following graphs:



4. Let R as a partial order (poset) on set A . Show that R^{-1} is also a poset.