

Relations

1. Let $A = \{0, 1, 2, 3\}$.
 - a. Draw directed graph for the relation $R = \{(0,0), (0,3), (1,0), (1,3), (2,2), (3,3), (3,2)\}$.

 - b. Create an adjacency matrix for R on $A \times A$.

 - c. Is R reflexive, symmetric, transitive, or antisymmetric?

2. Let $A = \{2, 3, 4, 6, 8, 9, 12, 18\}$, draw a Hasse diagram for $R =$ “the divides relation” on the set A

3. Let $S = \{0, 1, 2\}$, draw a Hasse diagram for the “subset” relation of $P(S)$

4. The relation $R = \{(a, a), (b, b), (b, d), (c, c), (d, b), (d, d)\}$ is an equivalence relation on the set $L = \{a, b, c, d\}$.
 - a. Draw directed graph for the relation R .

 - b. Find the distinct equivalence classes of R .

 - c. Create an adjacency matrix for R on $L \times L$.