

CS 201: DISCRETE STRUCTURES
SECTION G
October 11, 2018.
Quiz 3 Solution

PROBLEM 1

Find the reflexive closure of R_1

$$R_1 = \{(2,3), (2,5), (4,4), (3,2)\}$$

Solution

The reflexive closure is given by:

$$R_1 = \{(2,3), (2,5), (4,4), (3,2), (1,1), (2,2), (3,3), (5,5)\}$$

PROBLEM 2

Find the symmetric closure of R_1

$$R_1 = \{(2,3), (2,5), (4,4), (3,2)\}$$

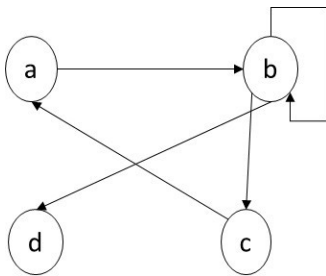
Solution

The reflexive closure is given by:

$$R_1 = \{(2,3), (2,5), (4,4), (3,2), (5,2)\}$$

PROBLEM 3

Find the transitive closure of R_2 represented by the following graph:



Solution

The transitive closure is given by:

$$\{(a,a), (a,b), (a,c), (a,d), (b,a), (b,b), (b,c), (b,d), (c,a), (c,b), (c,c), (c,d)\}$$