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twe 13:- Operations on Relations

E_{X,17} A_{2} \{1,2,3\} B_{2} \{1,2,3,4\}
lecture 13:
   P465
              R_{22} \{(1,0),(2,3),(3,3)\} R_{22} \{(1,1),(1,3),(1,3),(1,4)\}.
    F_{2} \cup F_{2} = \{(1,1), (2,2), (3,3), (1,2), (1,3), (1,4)\} = 0
F_{3} \cup F_{2} = \{(1,1), (2,2), (3,3), (1,2), (1,3), (1,4)\} = 0
F_{4} \cup F_{2} = \{(1,1), (2,2), (3,3), (1,2), (1,3), (1,4)\} = 0
     R_{2} \cap R_{2} = \{(2, 1)\}.
R_{1} - R_{2} = \{(2, 2), (3, 3)\}.
     R_2 - R_1 = R_2 - (R_1 \cap R_2) = \{(1,2),(1,3),(1,4)\}.
     RI DRZ Z RIURZ - RIORZ. from () & (2).
               = RIURZ - ((RIURZ) M(RIMRZ)) = HW.
Exi9: Ros & Cary) 1 x cy3. Rosa (xiy) 1 x 7y3. AzR.
P465
       RIVRIZ S(XIY) | X+y)
        RIARZ D.
        R_1 - R_2 = R_1 - (R_1 \cap R_2) = R_1
        RI-R2 = RI - (R, JRI) = RI
        FI = RIORZ - RIORZ = RIDRZ = (xiy)) x = y).
 Composite RELATION:
                R AxB (a1b).
S BxC (b1C).
                                                       a EA bEB.
                                                    BEB CEC.
  (aic) E SoR. if Ib (aib) ER 1 (bic) ES.
          Az {1,2,3} Bz {1,2,3,4}. Cz {0,1,2}.
EX20
 465
         R= 4(1,1), (1,4), (2,3), (3,1), (3,4)}. AxB.
         3 = } (1,0), (2,0), (3,1), (3,2), (4,1)} BxC.
 Sofz (1,0), (1,1), (2,1), (2,2), (3,0), (3,1)}
 ROS 2 HW.
  Rokz Porz Rorz R4
  505 z 8205 z 8305 z 84
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Rokz Porz Rorz R4 505 z S²05 z S³05 z S⁴ A relation R on a Set A, is transitive theorem: if and only if R^CR for n21,2,3.... 466. Exercise Questions: Oh. A relation R is defined on Az Set of people. 467 a) a is talled than b.
Rz f(a,b) la is talled than b. B. Reflexive: - ta EA (a1a) ER.
Va E Set of people. a istaller than a. X. Symmetric: Harb EA if (arb) ER -7 (bra) ER. X.
Harb E Set of people if a is talled than b -> b is talled than a. Anti Symmetrici- Haib EA if (aib) ERA (bia) ER - azb. V Haib E Set of pople. if a is talled than b A b is talled than a razb. transitive: Haibic EA if (aib) ER N(bic) ER > (aic) ER.

Haibic E Set of people if a is talled than b is talled than C.

a is talled than C. xzzy. Rzálxy) | xzdyb. Az R. Exercise. Question 6: Reflexive: - ta EA (a) ER.
Va E IR X = 2x. X. Symmetric: Harb EA if (arb) ER -7 (bra) ER.
Harb ER. if 2=2y -7 yz 2x. X. Anti Symmetrici: taib EA if (aib) ERA (bia) ER - azb.

VHW VHW VHW

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Anti Symmetrici + taib EA if (aib) ERA (bia) ER - azb.

VHW VHW VHW. transitive: Harbic EA if (ab) ER \(\lambda(bic)\) ER -> (aic) ER. X.

Harbic ER if \(\chiz\) \(\chi\) \(\chiz\) \(\c (412)ER (212)ER + 412)ER.