Date

A x A is known as the universal Relation.

TYPES OF RELATION

1- Reflexive $\forall a \in A, \forall (a,a) \in R$

2- Symmetric $\forall (a,b) \in R$, If $(a,b) \in R$ than $(b,a) \in R$

3- Antisymmetric $\forall (a,b) \in R$, If $(a,b) \wedge (b,a) \in R$ than $a = b$

4- Transitive $\forall (a,b,c) \in R$, If $(a,b) \wedge (b,c) \in R$ than $(a,c) \in R$

5- Irreflexive $\forall a \in A, \forall (a,a) \notin R$

6- Asymmetric Asymmetric = Irreflexive & Antisymmetric

Examples: $A = \{1, 2, 3, 4\}$

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

Holds no Property

$R_2 = \{(1,1), (1,2), (2,1)\}$ ∴ Symmetric

$R_3 = \{(1,1), (1,2), (1,4), (2,1), (2,2), (3,3), (4,1), (4,4)\}$ Reflexive & Symmetric

$R_6 = \{(3,4)\}$ not reflexive & Symmetric

$R_4 = \{(2,1), (3,1), (3,2), (4,1), (4,2), (4,3)\}$ Antisymmetric & irreflexive Asymmetric

$R_5 = \{(1,1), (1,2), (1,3), (1,4), (2,2), (2,3), (2,4), (3,3), (3,4), (4,4)\}$