

Discrete Mathematics

Question (7):

$$A = \{a, b, c, d, e\}$$

$$R = \{(a, a), (b, b), (c, c), (d, d), (e, e), (a, b), (b, c)\}$$

[1] $\Rightarrow$ Reflexive ?? **Yes**, because $\forall a \in A, a R a$

$\Rightarrow$ Symmetric ?? **No**, because $(b, a) \notin R$ and $(c, b) \notin R$

$\Rightarrow$ Antisymmetric ?? **Yes**, because $[(a, b) \in R \wedge (b, a) \in R] \rightarrow [a = b]$

$\Rightarrow$ Transitive ?? **No**, because $(a, c) \notin R$

[2] $R = \{(a, a), (b, b), (c, c), (d, d), (e, e), (a, b), (b, c), (b, a), (c, b), (a, c), (c, a)\}$