

Discrete Math
Quiz 3

Name: _____

You have 10 minutes to complete this quiz. If you have a question raise your hand and remain seated. In order to receive full credit your answer must be **complete**, **legible** and **correct**. Show your work, and give adequate explanations.

1. Let $E \subseteq A \times A$ be a binary relation on the set A . Explain what it means to say:
- (a) E is a reflexive relation.

$$(\forall a)((a, a) \in E)$$

- (b) E is a symmetric relation.

$$(\forall a)(\forall b)((a, b) \in E \rightarrow (b, a) \in E)$$

- (c) E is a transitive relation.

$$(\forall a)(\forall b)(\forall c)((a, b) \in E \wedge (b, c) \in E \rightarrow (a, c) \in E)$$

- (d) E is an equivalence relation.

E is a binary relation on A that is reflexive, symmetric, and transitive.