Discrete Math
Quiz 4

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.

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

   (c) E is a transitive relation.

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

   (d) E is an equivalence relation.

   E is reflexive, symmetric, and transitive.