Discrete Math
Quiz 0

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. Rewrite these axioms of set theory using English words instead of mathematical symbols.

(a) $(\exists x)\big((\forall y)(y \notin x)\big)$

(Axiom of the Empty Set) There is a set with no elements.

(b) $(\forall x)(\forall y)((x = y) \leftrightarrow \forall z((z \in x) \leftrightarrow (z \in y)))$

(Axiom of Extensionality) Any two sets, x and y, are equal if and only if they have the same elements.

2. Complete the following definition of "subset":

x is a subset of y if _____.

Two possible answers (which express the same thing):
(a) x is a subset of y if $z \in x$ implies $z \in y$.
(b) x is a subset of y if every element of x is an element of y.