CSCE 235 **Quiz #2** **Feb 14, 01**

Name: ..... SSN: ..... Row: ....

Question 1: Let R be the relation on $\mathbb{Z}$ defined by:

$$aRb \text{ iff } 3a + b \text{ is a multiple of4.}$$

Prove that R is transitive and find R^{-1}. Also, find all of the equivalnce classes.

Question 2: Define the following relation on R^2:

$$(a, b)R(c, d) \text{ iff } a^2 + b^2 = c^2 + d^2.$$

Find $[(\alpha, \beta)]$. What does $[(\alpha, \beta)]$ represent in the Cartesian plane? Also, find R^{-1}.

Question 3: Let R be a relation on a set X. Prove or disprove:

1. R is symmetric.

2. R is transitive.

3. R is reflexive.