Quiz 9: November 29, 2018

Left Neighbor: _____ Right Neighbor: _____

Name: _____ Student ID: _____

Section TA: _____

This is a closed book quiz

1. **(4 points)** If $R_1 = \{(a,a),(b,b),(c,c),(d,d),(a,b),(b,a)\}$ on the set $A = \{a,b,c,d\}$ and $R_2 = \{(a,b),(a,c),(c,b),(b,c)\}$ on the set $B = \{a,b,c\}$, which of the relations is reflexive? Symmetric? Transitive? If the property does not hold for one of the relations, please say why.

2. **(6 points)** if $a_n = 4a_{n-1} - 4a_{n-2}$, with $a_0 = 6$ and $a_1 = 8$, prove by induction that $a_n = 6 \cdot 2^n - 2n \cdot 2^n$ by induction on n,