Name (PRINTED): _____

Student ID #: _____

Section # (or TA's: name and time) _____

CMSC 250 Quiz #9 Wednesday, March 31, 2004

Write all answers legibly in the space provided. The number of points possible for each question is indicated in square brackets – the total number of points on the quiz is 30, and you will have exactly **20** minutes to complete this quiz. You may not use calculators, textbooks or any other aids during this quiz.

1. [15 pnts.]Use regular induction to prove the following inequality.

$$\forall n \in Z \text{ where } n \geq 6, \;\; 4n < n^2 - 7$$

2. [15 pnts.] Use strong induction to prove the following statement.

   Assume:

$$a_1 = 3, \quad a_2 = 5, \quad a_3 = 1, \text{ and } \quad a_n = 2a_{n-1} + 3a_{n-2} + 4a_{n-3} \forall n \in Z \text{ where } n > 3$$

   Prove that

$$\forall n \in Z^+, \quad a_n \in Z^{odd}$$