Name (PRINTED): _____

Student ID #: _____

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

CMSC 250 (0201 & 0202) Quiz#6 Wednesday, Oct. 5, 2005

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 15 minutes to complete this quiz. You may not use calculators, textbooks or any other aids during this quiz.

1. [22 pnts.] Disprove by counter example or Prove each of the following: (You may use the fact proven in class that if a number is not odd it is even, and if it is not even it is odd.)

   a. For all odd integers n and m, if $n - m$ is even, then $n^3 - m^3$ is even.

   b. $\forall x \in Q, \forall y \in Z^+, \frac{y}{y} \in Q$

2. [8 pnts.] State Yes or No for each of the following (only a small justification for your answer is necessary not a complete proof). Assume a, b and c are integers and x, y and z are rationals for all of the following questions.

a. _____ $\exists x \in Z, \forall y \in Z, x * y = 0 \wedge x \neq y$

b. _____ Every even integer has an odd integer that is one half its value.

c. _____ The sum of four consecutive integers is always even.

d. _____ The product of two consecutive integers is always even.