Name (PRINTED): ______________________

Student ID #: ______________________

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

CMSC 250 | Quiz #7 | Wednesday, Oct. 13, 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. [18 pnts.] Disprove by counter example or Give a complete proof for each of the following:

   a. For all integers a and b and all positive integers m, if $a \equiv_m b$ and $m|a$, then $b \equiv_m 0$.

   b. For any odd integer n, $\lfloor \frac{n^2}{4} \rfloor = (\frac{n-1}{2})(\frac{n+1}{2})$

2. [12 pnts.] Use the Unique Prime Factorization Theorem to prove that

$$\forall p \in Z^{prime}, \forall n \in Z^{>1}, p > 10 \land p|7n \to p|2n$$