Name (PRINTED): _____

Student ID #: _____

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

CMSC 250 Quiz #8 ANSWERS Wed., Mar. 15, 2006

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. [9 pnts.] Expand each of the following – if there are more than 5 terms, you MUST only tell the first five terms of each.

   a. $\sum_{i=-2}^{2} \frac{i+1}{i+3}$

   ANSWER: $= \frac{-1}{1} + \frac{0}{2} + \frac{1}{3} + \frac{2}{4} + \frac{3}{5}$

   b. $\forall k \geq 1, a_k = (-1)^{k+1} \cdot k$

   ANSWER: $a_0 = 1, a_1 = -2, a_2 = 3, a_4 = -4, a_5 = 5, ...$

   c. $\prod_{m=-1}^{5} m^{m+1}$

   ANSWER: $-1^0 \cdot 0^1 \cdot 1^2 \cdot 2^3 \cdot 3^4 \cdot ...$

2. [9 pnts.] Find the numeric value (or single fraction) of each of the following

   a. $\sum_{i=-1}^{1} i \cdot \frac{i+1}{i+2}$

   ANSWER: $\frac{2}{3}$

   b. $\prod_{j=-1}^{3} \frac{j^2}{j+2}$

   ANSWER: 0

   c. $\sum_{j=0}^{10} [(j+1) - j]$

   ANSWER: 11

↓ TURN OVER ↓

3. [12 pnts.] Tell, in the fewest number of terms, what would be needed in the blank in order to make the equality a true statement.

   a. $\sum_{i=1}^{m} a_i = \sum_{i=2}^{m+1} a_i +$_____

      ANSWER:$a_1 - a_{m+1}$

   b. $\prod_{i=n}^{m} b_i = \prod_{i=n-1}^{m} b_i \cdot$_____
      Assume: $n < m$

      ANSWER: $\frac{1}{b_{n-1}}$

   c. $\prod_{i=1}^{m} c_i = \prod_{i=3}^{m-3} c_i \cdot$_____

      ANSWER: $\prod_{i=1}^{2} c_i \cdot \prod_{i=m-2}^{m} c_i$

   d. $\sum_{i=n-2}^{m+2}(d_i + e_i) = \sum_{n}^{m}(d_i + e_i) + d_{n-1} + e_{m+1} +$_____
      Assume: $n < m$

      ANSWER: $d_{n-2} + \sum_{i=m+1}^{m+2} d_i + e_{m+2} + \sum_{i=n-2}^{n-1} e_i$