Name (PRINTED): _____

Student ID #: _____

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

CMSC 250 Quiz #11 Wednesday, April 14, 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 15 minutes to complete this quiz. You may not use calculators, textbooks or any other aids during this quiz. In order to receive any partial credit, you must show your work.

1. [15 pnts.] Assuming you have 3 indistinduishable **4-sided** dice, answer the following questions (assume 4-sided dice are possible and do exist where one and only one of the four sides is chosen as the die falls). You may assume each die has a 1, 2, 3, 4 on the four sides. Give your answers to the questions on this page by giving actual numerical (integer or rational number) answers.

   a. How many differnt values are possible as sum of all 3 dice?

   b. What is the probability that you will roll a 5 as the sum of the three dice?

   c. What is the probablility that you will roll a 13 as the sum of the three dice?

   d. What is the probability that all three values (one on each die) will match? (In other words: that all of the dice will land with the same side selected.)

   e. What is the probability that at least two of the values shown will match? (In other words: when you throw all three dice, two or more will land with the same side selected.)

↓ TURN OVER ↓

2. [15 pnts.] Assume you are in charge of lining people up to jump from an airplane during a sky diving lesson. You have 5 sky-diving students to schedule where three are female and two are male. You must assume they must jump individually (no two jumping at the same time). Answer the following questions assuming each question is independent of the others. You only have to take the answer to a single algebraic statement that includes fractions, factorials, exponents, addition, subtraction and multiplication.

   a. How many ways can you arrange the five students so that everyone jumps assuming there are no other restrictions?

   b. If you assume they must alternate, (girl, boy, girl, boy, girl), how many ways can you arrange the five sutdents so that everyone jumps?

   c. If you assume the boys act silly and try to out perform each other if the two of them jump consecutively, how many ways can you arrange them so that the boys do not jump immediately after one another but all students do jump? (In other words: there must be at least one girl between the two boys.)

   d. If you assume the girls want to jump where the three of them are consecutive, how many ways can you arrange them so that the three girls can jump consecutively, and all students jump?

   e. What is the probability that the three girls will jump consecutively if you make the order completely at random?

   f. What is the probability that the two boys will jump consecutively if you make the order completely at random?