Test 1 Purdom
7-18-90 C455

1. What is the value of the multinomial coefficient $\binom{9}{2,3,4}$?

2. Consider the following game. On turn 1 you roll two dice (ordinary 6 sided ones). You sum the number of the two dice to obtain a score that is in the range from 2 to 12. On turn 2 you roll the same two dice again to obtain a second score. If you two scores are the same, then you win. Otherwise you loose. What is you probability of winning?

3. Loaded dice have some numbers that come up more often than others. If you play the game from question 2 with loaded dice, does you chance of winning go up or down (or does it depend on details of the dice loading)?

4. Simplify $\sum_{1 \leq i \leq n} i^2 \lfloor \lg i \rfloor$.