CSE 321: Discrete Structures
Assignment #6
November 13, 2002
Due: Wednesday, November 20

Reading Assignment: Read Sections 4.3 - 4.5, 6.1.

Problems:

1. An ice cream parlor has 28 different flavors, 8 different kinds of sauce, and 12 toppings.

   (a) In how many different ways can a dish of three scoops of ice cream be made where each flavor can be used more than once and the order of the scoops does not matter?

   (b) How many different kinds of small sundaes are there if a small sundae contains one scoop of ice cream, a sauce, and a topping?

   (c) How many different kinds of large sundaes are there if a large sundae contains three scoops of ice cream, where each flavor can be used more than once and the order of the scoops does not matter; two kinds of sauce, where each sauce can be used only once and the order of the sauces does not matter; and three toppings, where each topping can be used only once and the order ot toppings does not matter?

2. What is the coefficient of a^4b^6 in $(a^2 + b)^8$?

3. Prove the binomial theorem using mathematical induction.

4. Section 4.3, execrcise 50.