Math 150

Section 9.3 Applications of Counting

Things to Keep in Mind:

$P(E) = \frac{n(E)}{n(S)}$

"and" corresponds to multiplication

"or" corresponds to addition

Example 1 A club consists of 7 members (4 men and 3 women). A committee of 2 members is chosen at random. Find:

(a) how many ways can a 2 member committee be selected.

(b) how many ways can a committee be selected where both committee members are men.

(c) the probability that both members chosen are men.

(d) the probability that both members chosen are women.

(e) the probability that the committee has one man and one woman.

(f) the probability distribution for and the expected number of men on the committee.

(g) the probability that Bill is on the committee.

(h) the probability that Bill and Tina are on the committee.

Example 2 In a lottery, 4 numbers are chosen from the numbers 1-30. If your ticket matches: 2 numbers you win \$10, 3 numbers you win \$50, all 4 numbers you win \$1000. You win nothing otherwise. Construct the probability distribution for the lottery and find the expected winnings for a ticket.

Example 3 DVDs use microchips. A DVD manufacturer rejects a package of 24 microchips if in a sample of 8, at least 1 is defective. If a package of 24 microchips has 3 defective chips, find the probability the package is accepted (not rejected).