

### Seminar 13

1. A company sells a product called Make-Your-Doll. It is a toy that consists of three doll bodies, five doll heads, four sets of legs, and two sets of arms. A child assembles the doll he or she wishes to play with. How many complete dolls should be marketing manager advertises that the kit can make if a doll consists of one representative from each of the following groups: body, head, legs, and arms?
2. Calculate:
  - a.  $0!$
  - b.  $5!$
  - c.  ${}_{10}P_7$  and  ${}_{10}P_3$
  - d.  ${}_{10}C_7$  and  ${}_{10}C_3$
  - e.  ${}_{1000}C_5$
3. There are six employees who work for one supervisor. The supervisor must rank these people. How many different rankings are possible?
4. If there are nine starters in a race, in how many different ways can first, second, and third prizes be awarded?
5. How many 13-card bridge hands can be dealt from a deck of 52 deck?
6. A display shelf has room to exhibit five items of merchandise. The store manager has eight items she would like to display. How many different displays can she construct under the following conditions?
  - a. She counts it as a new display every time she change the order of the five items - even though the same five items may be on the shelf.
  - b. She counts it as a new display only if she takes one of the five items off the shelf and puts a new one on.
7. A company has 12 geographical areas in which it can market its new product. Determine that how many ways the marketing vice president can plan a marketing campaign with the following areas:
  - a. One major and one minor target area.
  - b. Two minor target areas.
8. A case of 24 cans contains 1 can that is contaminated. Three cans are to be chosen randomly for testing. How many different combinations of 3 cans could be selected?
9. If there are ten multiple choice questions on an examination, each having four possible answers, how many different possibilities are there in terms of the sequence of correct answers?