**Mat 102**

1. How many different 5-digit sequences can be formed using the digits 0,1,….8 if repetition of digits is allowed?

**Use the multiplication principle to solve the problem**

1. A shirt company has 4 designs each of which can be made with short or long sleeves. There are 7 color patterns available. How many different types of shirts are available from this company?
2. How many different 4-letter radio station call letters can be made if repeats are allowed and the first letter MUST be K?
3. How many 4-digit numbers can be formed using the digits 0,1,2,3,4,5,6 if repetition of digits is NOT allowed?

**Solve the problem**

1. A musician plans to perform 6 selections. In how many ways can she arrange the musical selections?
2. There are 10 members on a board of directors. If they must elect a chairperson, a secretary, and a treasurer, how many different slates of candidates are possible?
3. In how many ways can 5 letters be chose from the set {A,B,C,D,E,F} if order IS important and no repeats are allowed?
4. There are 10 members on a board of directors. If they must form a subcommittee of 4 members, how many different subcommittees are possible?
5. In a certain lottery, 4 numbers between 1 and 11 inclusive are drawn. These are the winning numbers. How many different selections are possible? Assume that the order in which thenumbers are drawn is not important.
6. If the police have 8 suspects, how many different ways can they select 5 for a lineup?
7. Three student representatives are to be chosen from a group of five students: Andrew, Brenda, Chad, Dorothy, and Eric. In how many different ways can the representatives be chosen if two must be male and 1 must be female?
8. A bag contains 5 cherry, 3 orange, 2 lemon candies. You reach in and take 3 pieces of candy at random. Find the probability of the following:

All cherry

All lemon

One of each flavor