

**Question #15987 9.** There are 5 girls and 3 boys in a statistics class. A group of 2 girls and 1 boy is to be formed to solve a particular problem. In how many ways can such a group be formed when:

- a. Any boy and any girl may be included in the group
- b. One particular girl may be included in the group.
- c. Two particular girls may be included in the group.

10. The tourism department of a regional government have 5 vacancies of tourist managers to fill out 12 applicants who all are equally qualified for these posts. In how many ways can the vacancies be filled?.

**Solution** Solution follows from definition of binomial coefficients.

a)  $\binom{5}{2} \cdot \binom{3}{1}$ .

b) Now we are only to choose one girl from 4 girls and 1 boy from 3 boys, hence we get  $\binom{4}{1} \cdot \binom{3}{1}$ .

c) We are only to choose a boy,  $\binom{3}{1}$ .

10) From definition of binomial coefficient follows that number of ways equals  $\binom{12}{5}$ .