Brainbox learn easy

Chapter 07

PERMUTATIONS AND COMBINATIONS

FORMATION ON GEOMETRICAL FIGURES:

In this section we are going to learn, the number of ways or the number of polygons that can be formed from the given points in the plane.

Number of straight lines from given ‘n’ points:

Consider ‘n’ points in a plane and we need to find the number of straight lines that can be draw from these ‘n’ points. In order to draw a straight line we have to select 2 points and join them, so now question is in how many ways we can select 2 points from ‘n’ points. In simple line this question can not be answered unless it is given that no three of which are collinear.

If no three of them are collinear then number of straight lines is ${}^{n}C_{2}$.

EXAMPLE:

How many straight lines can be drawn from the 15 points in a plane if no three points are ‘n’ a straight line?

SOLUTION:

To draw a straight line we need to select 2 points, so total number of straight lines is ${}^{15}C_{2}$.

Number of straight lines from given ‘n’ points out of them exactly ‘k’ points are collinear.

If no three of them are collinear then number of straight lines is ${}^{n}C_{2}$ but ‘k’ lines are in same straight lines hence we will not get ${}^{k}C_{2}$ straight lines hence total number of straight lines is ${}^{n}C_{2} - {}^{k}C_{2} + 1$.