

20.

Ques :- We have total 15 natural numbers.

Firstly select any 10 consecutive numbers.

(let us say. 1, 2, 3, 4, ..., 10). with gaps.

So, it is like. Person has to sit on alternate chairs

So, It becomes. _ 1 _ 2 _ 3 _ 4 _ 5 _ 6 _ 7 _ 8 _ 9 _ 10 _

Now, we can see. the above 10 natural numbers are not consecutive

And Now our remaining 5 numbers have to placed in these gaps.

So, total gaps = 11.

Number to be kept = 5

So, No. of ways ${}^{11}C_5$.

Another Method As You didn't understand it properly. Try to understand

\Rightarrow So, there are $\binom{n-k+1}{k}$ subsets of $\{1, 2, 3, \dots, n\}$ with k elements and no two consecutive.

\Rightarrow There is a bijective proof. Given a subset of $\{1, 2, 3, \dots, n-k+1\}$ with elements a_1, a_2, \dots, a_k

