Classes Number of trees	The upper limits of the classes	f_i No. of families	Rising F_i	symbols F_i	second way
60-74	Less than or equal to 74	4	4	$F_1 = f_1$	$F_1 = f_1$
75-89	Less than or equal t 89	5	4+5=9	$F_2 = f_1 + f_2$	$F_2 = F_1 + f_2$
90-104	Less than or equal to 104	10	9+10=19	$F_3 = f_1 + f_2 + f_3$	$F_3 = F_2 + f_3$
105-119	Less than or equal to 119	12	31	〃	$F_4 = F_3 + f_4$
120-134	Less than or equal to 134	16	47	〃	〃
135-149	Less than or equal to 149	7	54	〃	〃
150-164	Les than or equal to 164	6	60	$F_6 = f_1 \ldots + f_6$	$F_6 = F_5 + f_6$
		60			

From the table above, we can say that the number of families that own 104 trees or less is 19 families, and that the number of families that own 149 trees or less is 54 families, and so on is the interpretation of the rest of the value.

② **Relative Ascending clustered Frequency Distribution:** This is done by dividing the accumulated frequencies by the sum of the total frequencies, i.e. n
So, we symbolize the relative ascending accumulated frequency with the symbol

$$F_i^* = \frac{F_i}{\sum f_i} = \frac{F_i}{n}$$

Percentage Ascending clustered Frequency

$$PF_i^* = \frac{F_i}{n} * 100 = F_i^* * 100$$

F_i^*	PF_i^*
4/60	(4/60)*100 = 6.667
9/60	(9/60)*100 = 15
19/60	(19/60)*100 = 31.667
31/60	(31/60)*100 = 51.66
47/60	(47/60)*100 = 78.333
54/60	(54/60)*100 = 90

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Event: An event is a specific occurrence or happening often planned or organized

The principle of basic Counting: That means Using basic counting method to perform arthimatic operations without the need for Mathematical equation

Example: we have three white boxes, inside there are four blue boxes. How many blue boxes

Solution:-

number of white boxes = 3
number of blue boxes per white boxes = 4

$\therefore 3 \times 4 = 12$ boxes

permutations: The number of permutations of n different element is n! where

$n! = n(n-1)(n-2) \times \ldots \times$ ——

permutations of subsets: The number of permutation of subsets of r elements selected from a set of n different elements is

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$$P_r^n = \frac{n!}{(n-r)!}$$

Combination: The number of Combinations subsets of size r that can be selected from a set of n elements, is denoted as C_r^n or $\binom{n}{r}$ and

$$C_r^n = \frac{n!}{r!(n-r)!}$$

يستخدم التوافق في الحالات التاليه

1. الاسئله الامتحانيه دون مراعاه الترتيب
2. سحب عينه بدون ارجاع وبدون ترتيب
3. مسائل اللجان في حاله عدم الترتيب
4. الاشكال الهندسيه (قطعه المستقيم $r = 2$، المربع والمستطيل $r = 4$، الشكل السداسي $r = 6$)
5. تطبيقات المتباينه الانتقال من مجموعه صغيره الى مجموعه كبيره.
6. كل مسأله لا تهتم بالترتيب هي مسأله توافق.

Examples: Find C_2^5, C_4^6. C_2^4, C_6^5

C_3^3

Solution: $C_2^5 = \frac{5!}{2!(5-2)!}$

$$= \frac{5 \times \cancel{4}^{2} \times \cancel{3} \times \cancel{2} \times \cancel{1}}{\cancel{2}_{1} \times \cancel{3} \times \cancel{2} \times \cancel{1}} = 5$$

$$C_4^6 \cdot C_2^4 = \frac{6!}{4!(6-4)!} \quad \frac{4!}{2!(4-2)!}$$

$$= \frac{\cancel{6}^{3} \times 5 \times \cancel{4!}}{\cancel{4!} \times \cancel{2}_{1} \times 1} \quad \frac{\cancel{4}^{2} \times 3 \times \cancel{2!}}{\cancel{2!} \times \cancel{2}_{1} \times 1}$$

$$= 3 \times 5 \times 2 \times 3$$

$$= 90$$

$$C_0^5 = \frac{5!}{0!(5-0)!} = 1$$

$$C_3^3 = \frac{3!}{3!(3-3)!} = \frac{3!}{3!\ 0!} = 1$$

Note: $0! = 1$

$1! = 1$

Example: How many ways are there to form a committee consisting of 4 people, including 10 men and 6 women?

① The entire committee is of the same gender

② At least one man

③ Most of them contain two men

④ One woman was excluded from the committee, which contains three women

⑤ Excluding one man from the committee which contains only two men