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DPP5

① Kindergarden → Dadaji Prob.

② hold

(3) 4 → AP → $\left({}^{4}C_1 + {}^{4}C_2\right)$

5 → PnC

6 → BT.

$$\left({}^{4}C_1 + {}^{4}C_2\right) \times \left({}^{5}C_1 + {}^{5}C_2\right) \times \left({}^{6}C_1 + {}^{6}C_2\right)$$

④

Q5 5 digit No such that Sum is Even.

जितने भी 5 digit No बनेंगे उनमें आधों का Sum odd आधों का Sum Even

$9 \times 10 \times 10 \times 10 \times 10$

$\frac{90000}{2}$ — 45000 Even में आएंगे

	Sum	
1 2 4 5 9	21	
1 2 4 6 0	13 ✓	odd
1 2 4 6 1	14	E
1 2 4 6 2	15	odd
1 2 4 6 3	16	E
1 2 4 6 4	17	odd
1 2 4 6 5	18	E
1 2 4 6 6	19	Odd
1 2 4 6 7	20	

$^{4}C_1 \times 2! \times 4!$

$720 - 192 =$

16 – (दोनों तरीके जवाबों का g.s. साथ में)

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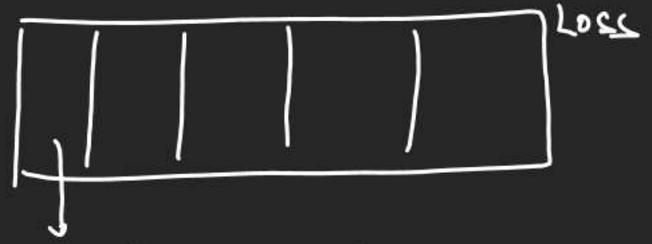
3 forecast → Draw / Win / Loss



$${}^3C_1 \times {}^3C_1 \times {}^3C_1 \times {}^3C_1 \times {}^3C_1$$

$$= 3^5 = 243.$$

$N(0) = 1$

$N(1) =$ 1 forecast wrong
$\Rightarrow$ 4 in correct

$${}^5C_4 \times 1 \times {}^2C_1 = 10$$

$$N(2) = {}^5C_3 \times 1 \times {}^2C_1 \times {}^2C_1 = 40$$

$$N(3) = {}^5C_2 \times 1 \times {}^2C_1 \times {}^2C_1 \times {}^2C_1 = 80$$

$$N(4) = {}^5C_1 \times 1 \times {}^2C_1 \times {}^2C_1 \times {}^2C_1 \times {}^2C_1 = 80$$

$$N(5) = {}^2C_1 \times {}^2C_1 \times {}^2C_1 \times {}^2C_1 \times {}^2C_1 = 16.$$

(7) hold. (distribution

(8) (ricket Prob.

$${}^{11}C_5 - {}^9C_3$$

A, B together.

9, 10 hold

↓ Distributions

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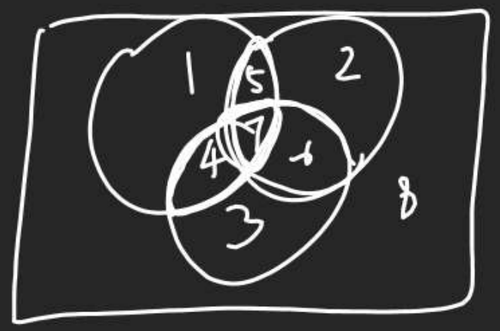
Q A, A, B, B, C, C, D, E, F, G.

IHMW letters can be arranged so that alike letters must be seperated.

$\{1, 2, 3\}$

$$\frac{10!}{2!\,2!\,2!} - 3\times\frac{9!}{\lfloor 2\,\lfloor 2} + 3\times\frac{8!}{\lfloor 2} - 7!\times 1$$

$$- \{3 \times n(p) - 3n(p,q) + n(p,q,r\}$$



$$\begin{bmatrix} 1+4+5+7 \\ 3+4+7+6 \\ 5+7+6+2 \end{bmatrix} - \begin{bmatrix} 4+7 \\ 5+7 \\ 6+7 \end{bmatrix} + 7$$

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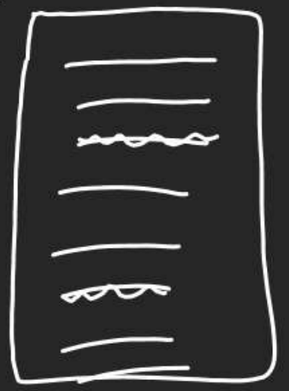
Interview Problem.



Q In HMW Interview schedule of 10 persons can be made if

(1) Ram goes before Shyam.

$$^{10}C_2 \times 1 \times 8! = \frac{10!}{2!\,8!} \times 8! = \frac{10!}{2!}$$

(2) Ram before Shyam & Shyam before Mohan.

$$^{10}C_3 \times 1 \times 7! = \frac{10!}{3!\,7!} \times 7! = \frac{10!}{3!}$$

(3) Ram before Shyam & Mohan.

$$^{10}C_3 \times 1 \times 2! \times 7!$$

$$\frac{10!}{3!\,7!} \times 2! \times 7! = \frac{10! \times 2!}{3!}$$

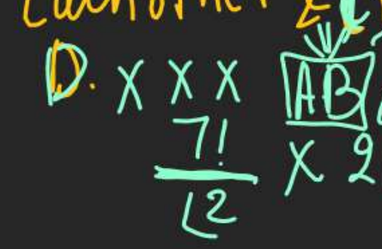
Q In HMW Interview shedule of 6 Persons (3 Children, 3 Mothers) can be arranged. If No child should be Interviewed before his Mother.

$C_1\ C_2\ C_3\ \ M_1\ M_2\ M_3$

$$^{6}C_2 \times 1 \times {}^{4}C_2 \times \frac{6!}{2!\,2!\,2!} \times {}^{2}C_2 \times 1$$

Q Now in which 8 ppl can be Arranged in a line. If A & B must be next to each other & C must be somewhere Behind D.

$$\frac{7!}{2!} \times 2! = 7!$$



Concept:

Division & Distribution.

Things to be distributed	Places or Persons Where things to be distributed	Methods.
Different	Different	division by Group Method then Distribution
Different	Alike	division by Group Method & distribution by One Way
Alike	different	Beggars Method
Alike	Alike	Just count using Group Method

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Division in Group Method.

1) $6 \begin{cases} \nearrow 4 \\ \searrow 2 \end{cases} = \frac{6!}{4!\,2!}$

2) $10 \begin{cases} \nearrow 5 \\ \rightarrow 3 \\ \searrow 2 \end{cases} = \frac{10!}{5!\,3!\,2!}$

(3) $12 \begin{cases} \nearrow 6 \\ \rightarrow 3 \\ \rightarrow 2 \\ \searrow 1 \end{cases} = \frac{12!}{6!\,3!\,2!\,1!}$

(4) $6 \begin{cases} \nearrow 2 \\ \rightarrow 2 \\ \searrow 2 \end{cases} = \frac{6!}{2!\,2!\,2!} \times \frac{1}{3!}$

(5) $10 \begin{cases} \nearrow 2 \\ \rightarrow 2 \\ \rightarrow 2 \\ \searrow 4 \end{cases} = \frac{10!}{(2!)^3\,4!} \times \frac{1}{3!}$

(6) $10 \begin{cases} \nearrow 2 \\ \rightarrow 4 \\ \searrow 4 \end{cases} = \frac{10!}{2!\,(4!)^2} \times \frac{1}{2!}$

1) Total No of Ways of Division is obtained by dividing the factorial of total No. of things by the factorial of no. of things in each group.

2) Also Remember if there is Repeatation in Dr. then Multiply the Dr. by factorial of No of Repeatation.

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Distribution of different things in Different Persons.

Q IHMW 5 diff. Books can be distributed in 3 children So that each gets at least one Book.