

Foundation Batch



MATHS

(Permutation & Combination)

(क्रमचय और संचय)

LIVE

27-12-2024 07:00PM



PERMUTATION & COMBINATION

क्रम-चय
↓
Arrangement

सं-चय
↓
Selection

ex



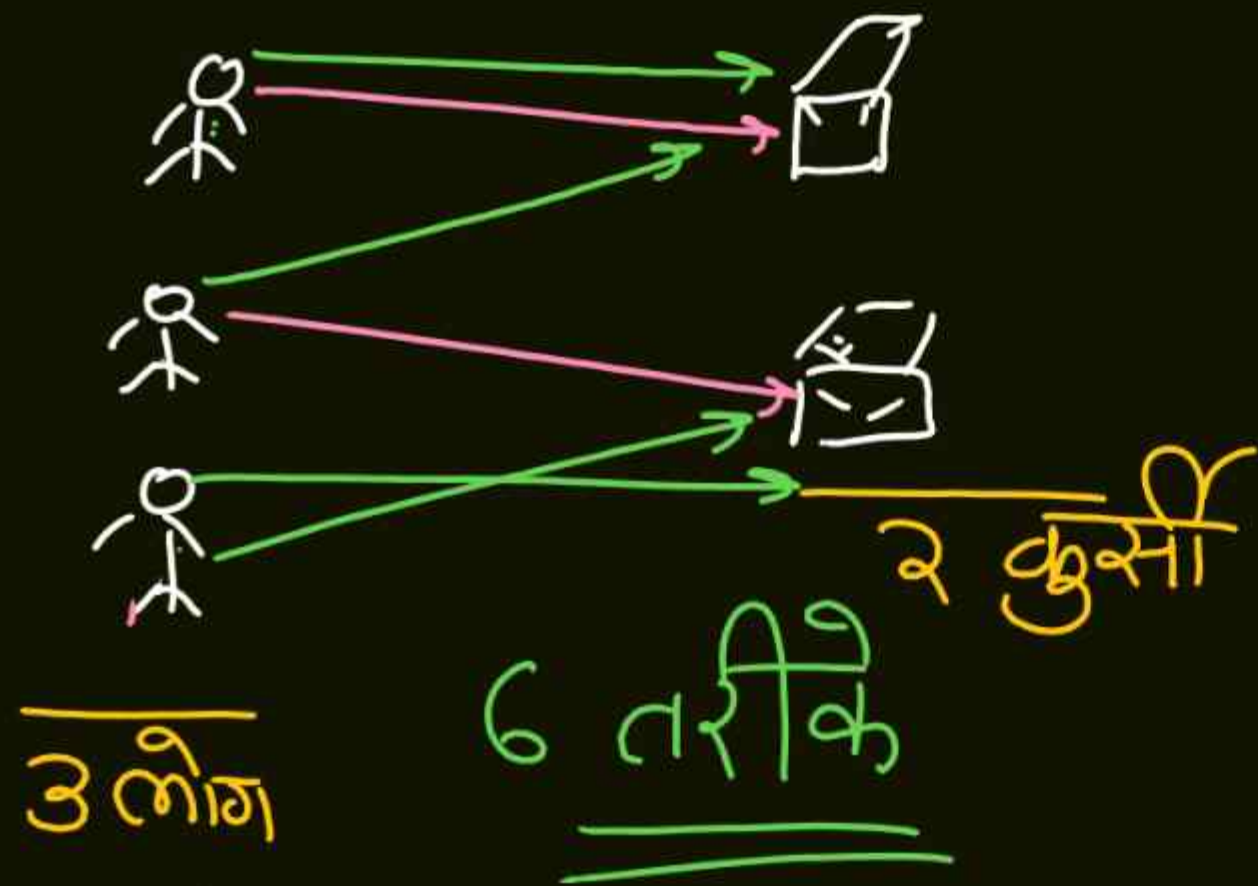
1 तरीका



2 तरीके



3 तरीका



$$= {}^3P_2 = \frac{3!}{(3-2)!}$$

$$\frac{3 \times 2 \times 1}{1} = 6$$

n संख्याओं को r क्रम
में arrange करने के तरीके

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

7 लोग 3 कुर्सी



$$= \underline{210}$$

$7P_3$

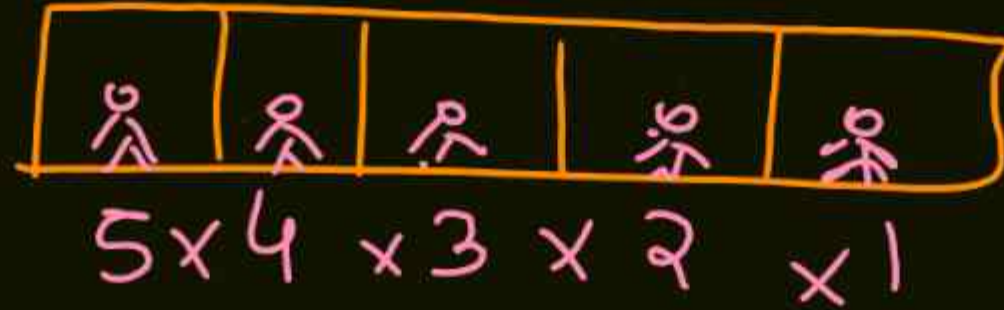
$$= \frac{7!}{(7-3)!}$$

$$= \frac{7!}{4!} = \frac{7 \times 6 \times 5 \times \cancel{4!}}{\cancel{4!}}$$

२१० तरीके

5 कुर्सी 5 लोग

5P_5



$$\frac{5!}{(5-5)!} = \frac{5!}{0!} = \underline{\underline{120}}$$

$$\boxed{0! = 1}$$

$$= 5! = 5 \times 4 \times 3 \times 2 \times 1 \\ = \underline{\underline{120}}$$

$$r! (n-r)!$$

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

Permutation

$$\text{Combination} \times r! = \text{Permutation}$$

संयोजन

n लोग n कुर्सी

बैठाने के तरीके $\rightarrow \underline{\underline{n!}}$

Combination (संयोजन) $\rightarrow$ Selection

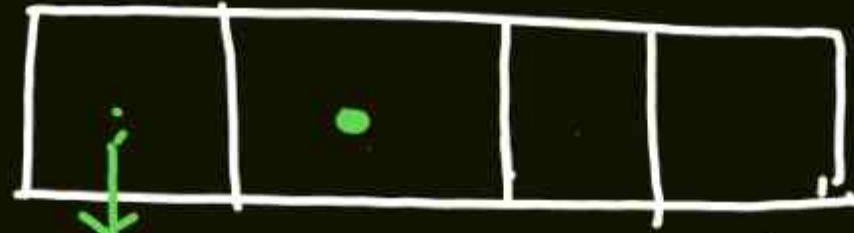
20 लोग $\rightarrow$ 5 लोगों को Select करना

$$\Rightarrow {}^{20}C_5 = \frac{20!}{5! \times (20-5)!}$$

$$= \frac{20 \times 19 \times 18 \times 17 \times 16 \times 15!}{5! \times 15!}$$

1, 2, 3, 4

4 अंकों की संख्या



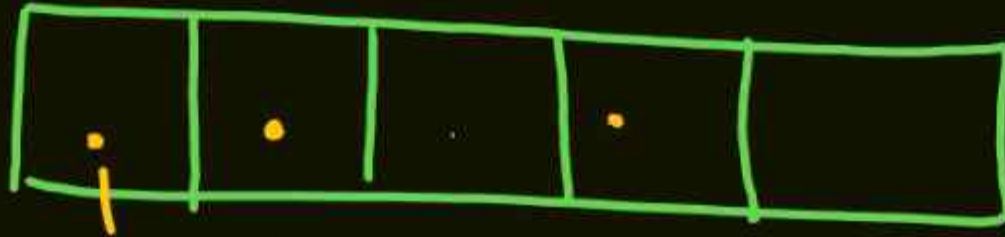
4 × 3 × 2 × 1

= 24

1234
2134
3214
⋮
⋮
⋮
⋮

5, 6, 7, 8, 9

How many 5 digit numbers?



$5 \times 4 \times 3 \times 2 \times 1$

$= 120$ Numbers

1, 2, 3, 4, 5

How many 3 digit No.s.

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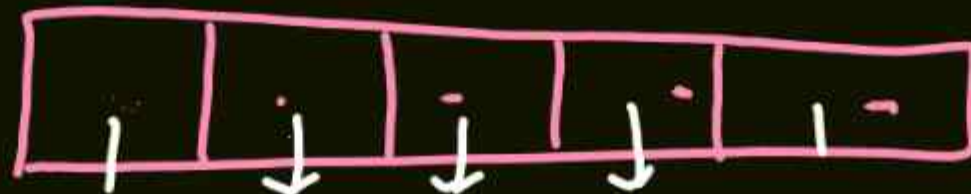
$$5 \times 4 \times 3$$

$$= \underline{\underline{60}}$$

0, 1, 2, 3, 4

How many 5 digit Numbers?

arr



$$4 \times 4 \times 3 \times 2 \times 1$$

$$= \underline{\underline{96}}$$

ex. 1, 2, 3, 4, 5

odd (1, 3, 5)

five digit Odd Numbers



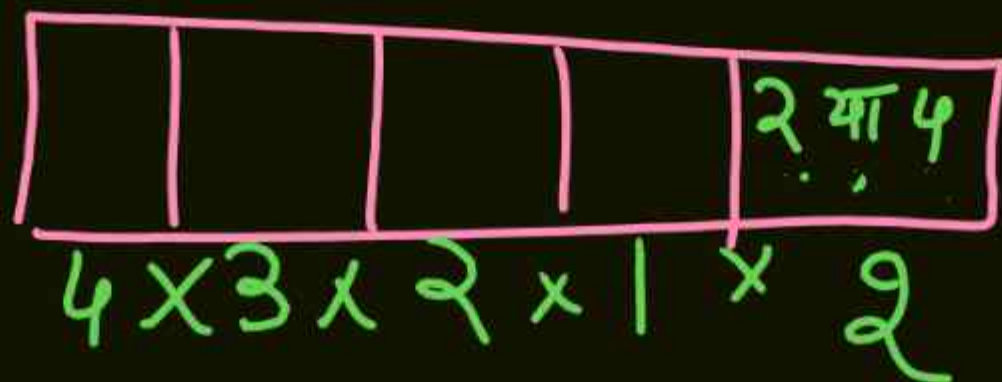
$$4 \times 3 \times 2 \times 1 \quad 3$$

$$= \textcircled{72} \checkmark$$

1, 2, 3, 4, 5

How many 5 digits even Numbers?

even
(2, 4)

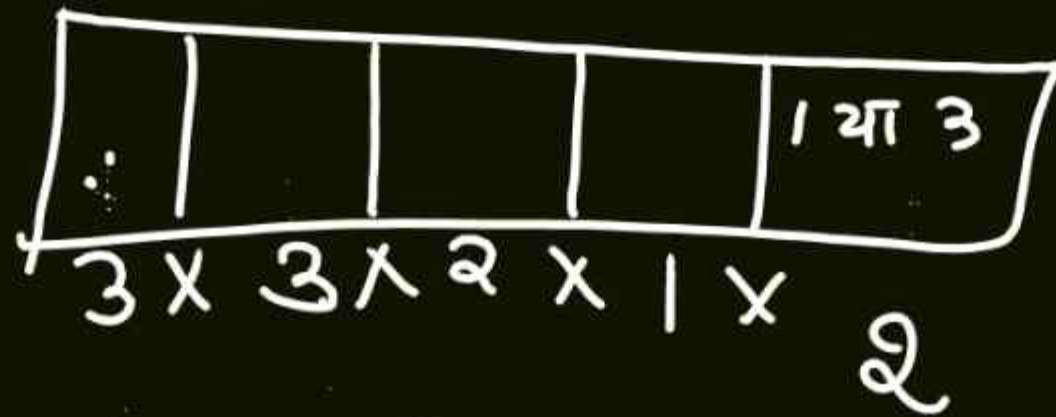


$$= 48$$

0, 1, 2, 3, 4

odd
(1, 3)

How many 5 digit odd numbers.

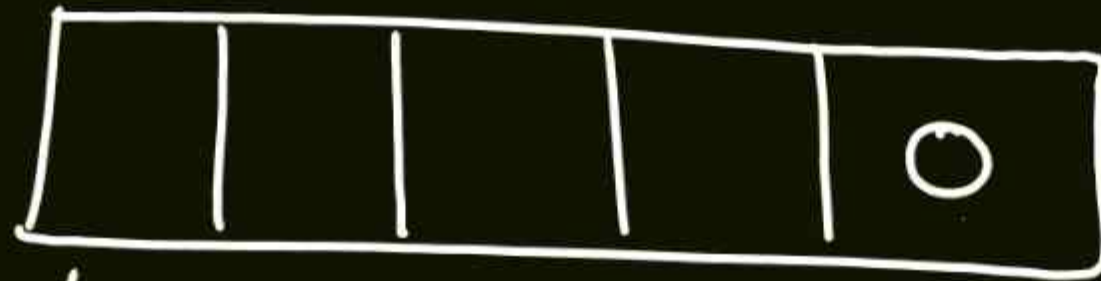


36

0, 1, 2, 3, 4

How many 5 digit even numbers.

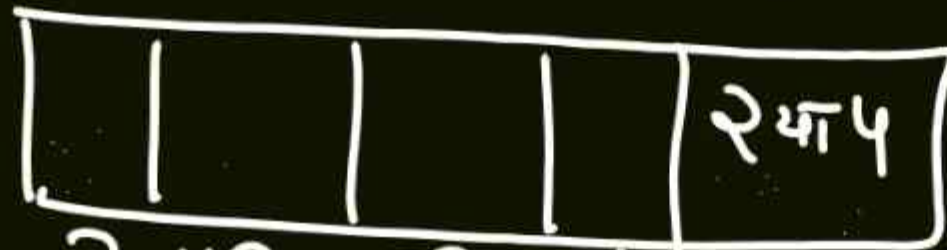
Case-1



$4 \times 3 \times 2 \times 1 \times 1$

$= 24$

Case-2



$3 \times 3 \times 2 \times 1 \times 2$

36

even (2, 4)

$24 + 36$

60