Nishant Jindal

Q. from 5 Circles & 4 Lines find max. PoI.

Circle-Circle   Circle-Line   Line-Line

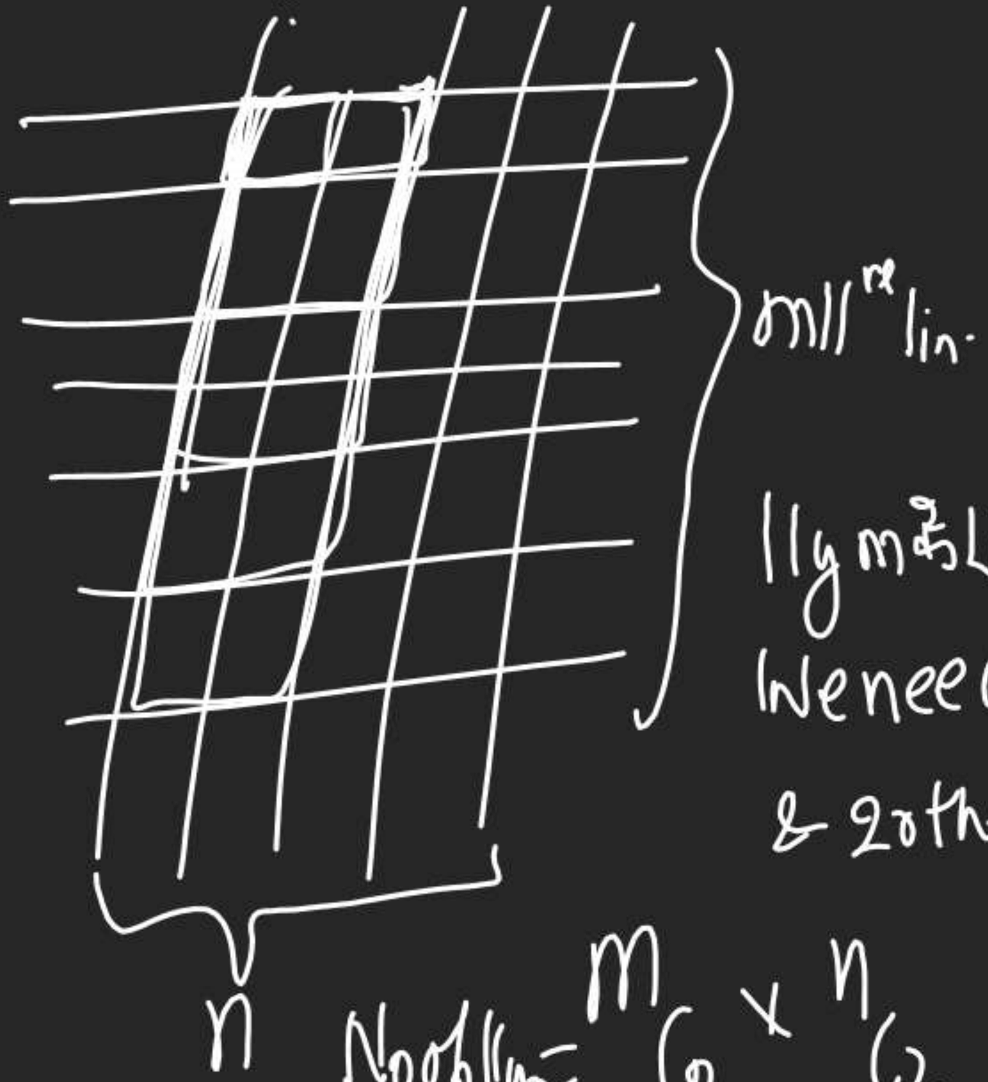
2 PoI

$^5C_2 \times 2$ + $^5C_1 \times {}^4C_1 \times 2$ + $^4C_2 \times 1$

($^5C_2$: 5 Circle में से 2 Circle Select करने के Ways; $\times 2$: 1 Pr Pair से PoI)

$20 + 40 + 6$
$= 66$

Q. from m ∥ Line & n another ∥ Lines find No of ∥gm Psbl?



∥gm के Line
We need 2 = lines
& 2 other // Lines

No of ∥gm = $^mC_2 \times {}^nC_2$

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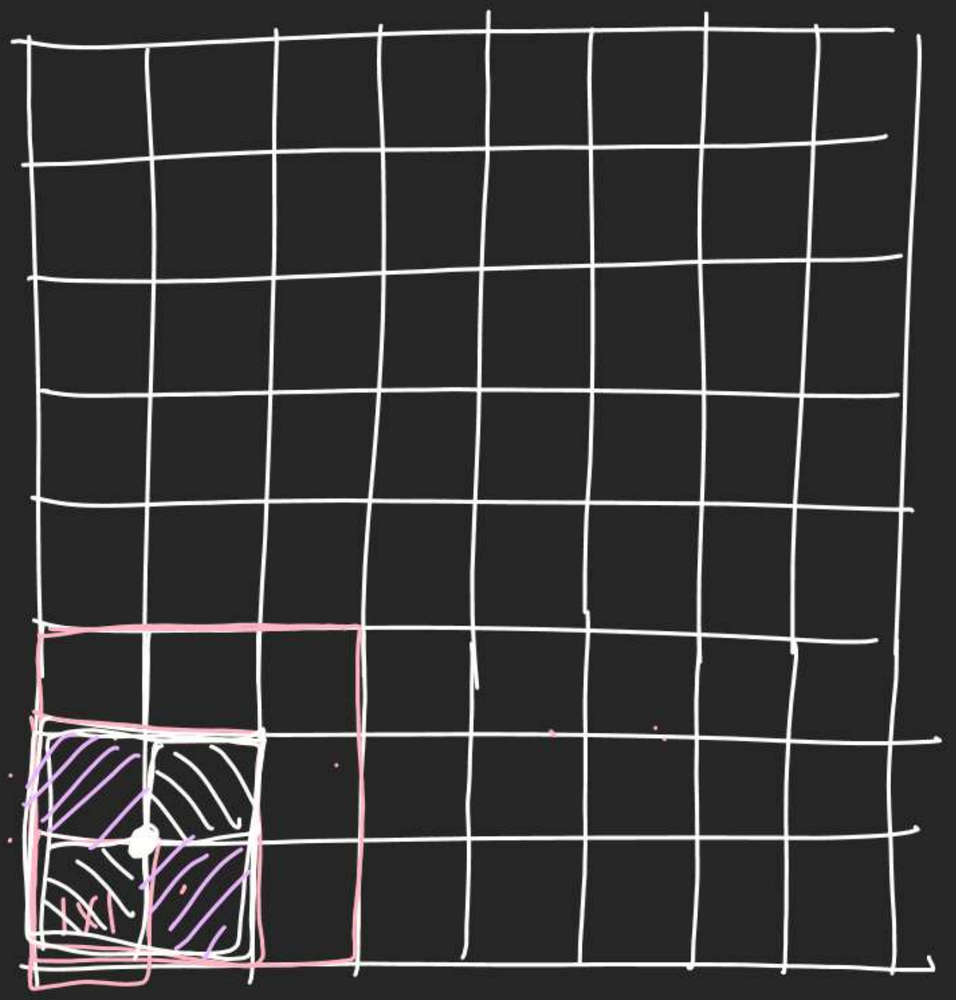
Q On a chessboard



① No of sq^r on Chessboard

$1\times1 \longrightarrow 8\times8$

$2\times2 \longrightarrow 7\times7$

$3\times3 \longrightarrow 6\times6$

$4\times4 \longrightarrow 5\times5$

$5\times5 \longrightarrow 4\times4$

$6\times6 \longrightarrow 3\times3$

$7\times7 \longrightarrow 2\times2$

$8\times8 \longrightarrow 1\times1$

Total sq^r $= 1^2+2^2+3^2+\cdots 8^2$

$= \frac{(8)(9)(17)}{6} = 204$

(2) Total Rectangle

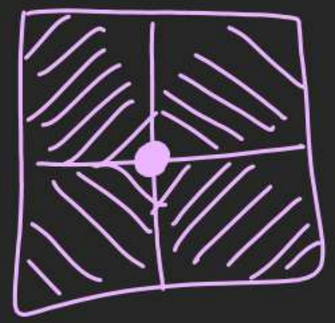
$= {}^{9}C_2 \times {}^{9}C_2 = 36\times36$

$= 1296$

(3) No of Rectangle which are not sq^r

$= 1296-204$

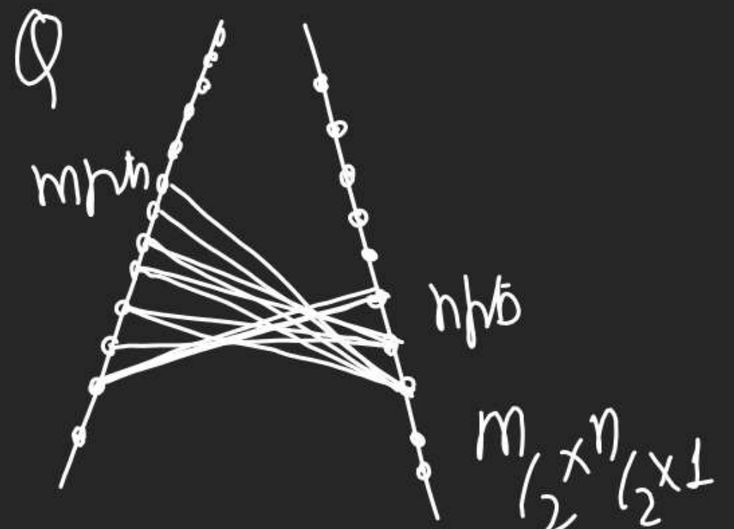
(4) No of unit sq^n who have common vertex.



Jitni bar Aise 2×2 ⇒ Dbbe Ayenge

We will get 2 unit sq^r having Comm. vertex.

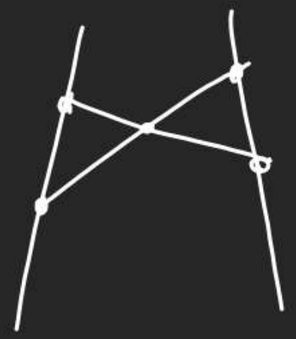
No of unit sq's = 7 × 7 × 2 having common vertex.

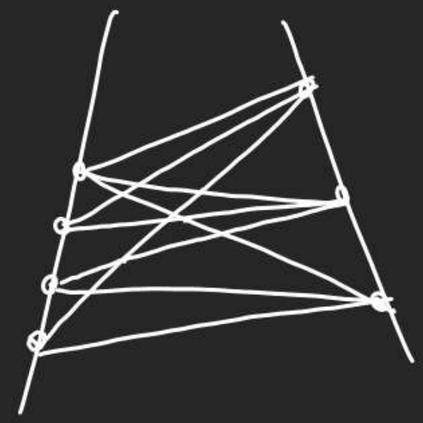


$m_{C_2} \times n_{C_2} \times 1$

Find No of PoI

When apt from 1st line & apt from 2nd Line is connected





$PoI = {}^{4}C_2 \times {}^{3}C_2 \times 1$

$= 6 \times 3 = 18$

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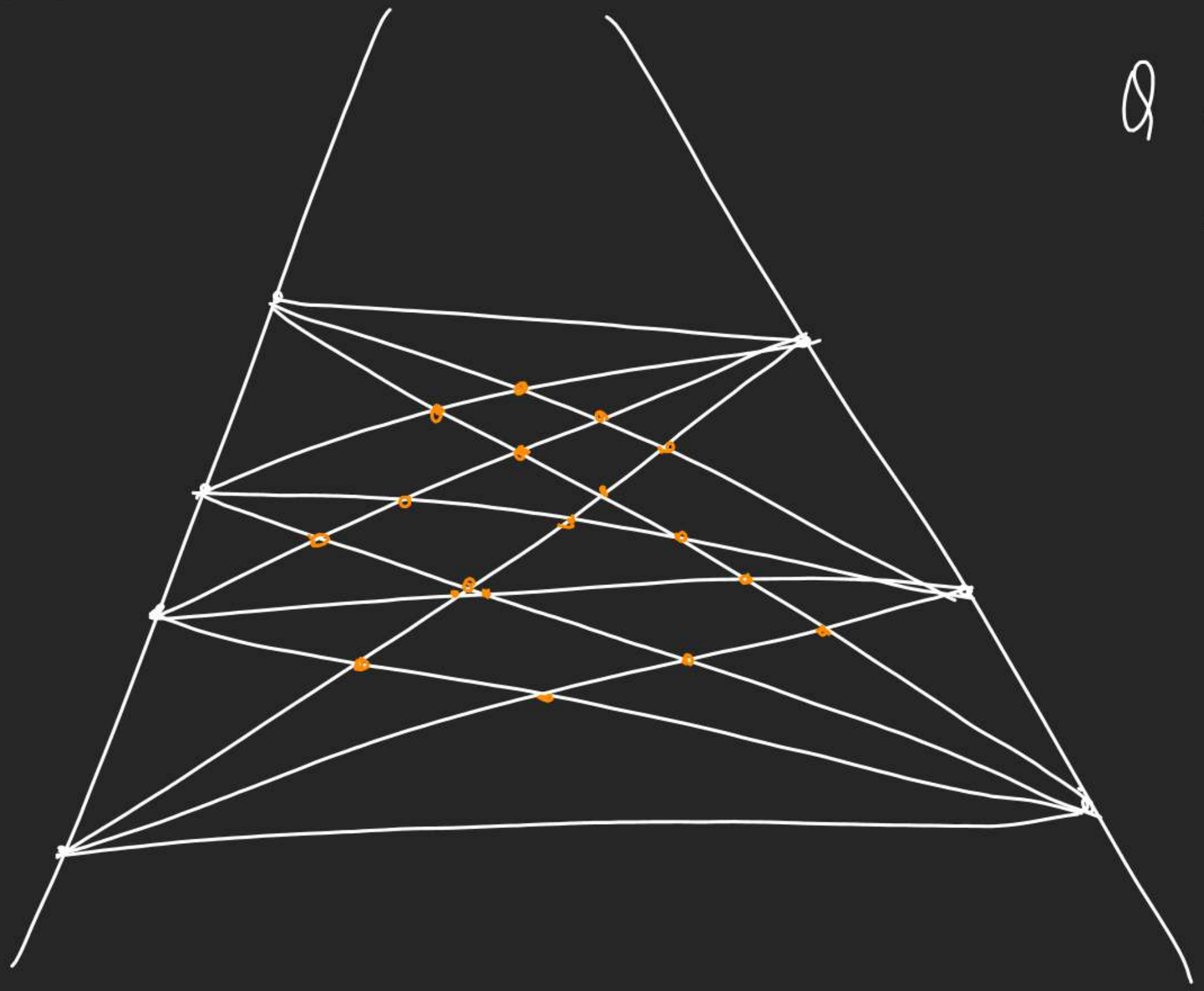
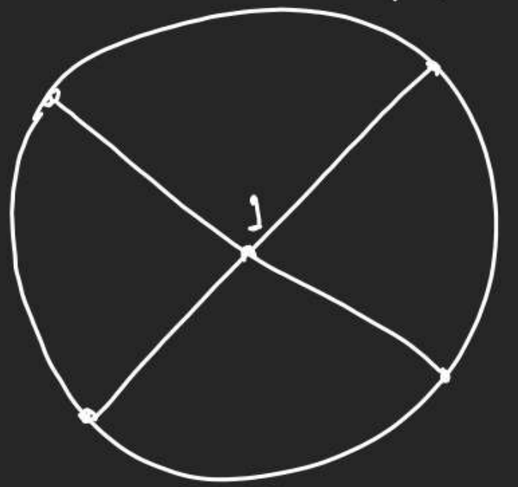


Q 9 pts are given on a Circle, each pt is joined to another, find No of PoI



If you need 1 pt of Int. on a Circle you need 4 pts

As many times you can find 4 pts out of 9 you will get 1 PoI

Total $= {}^{9}C_{4} \times 1$ PoI

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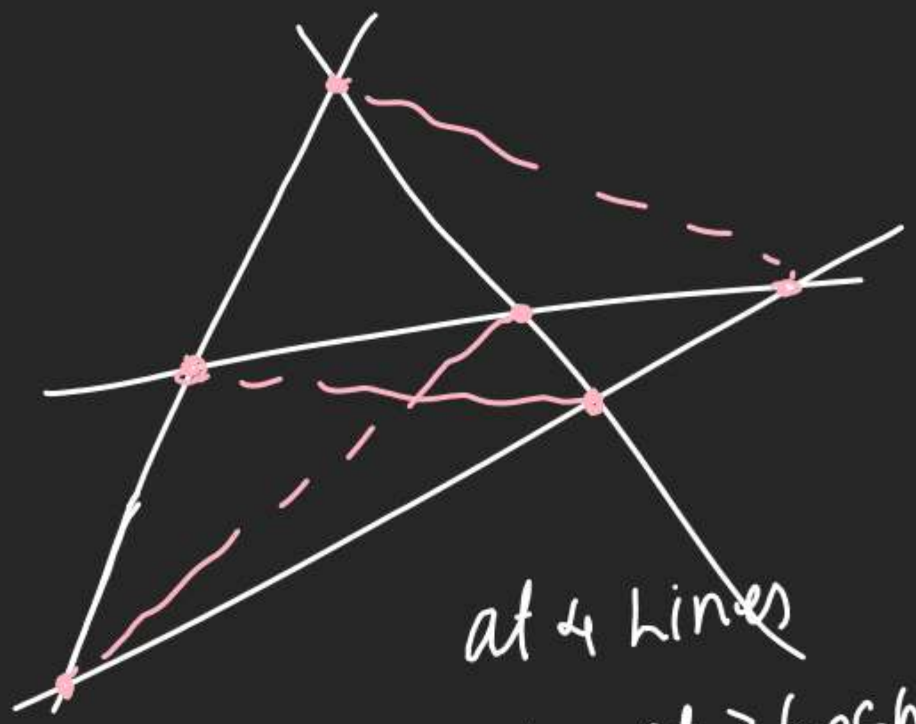
Q. There are n STL in a plane, no 2 of them are ||^{re}, & no 3 passes through same pt. Their P.O.I are joined. Then find No of fresh Lines.

No of fresh lines $= {}^{n}C_4 \times 3$



at 4 Lines we get 3 fresh lines

3 Lines पर PoI को Jodne पर No of fresh lines = 0

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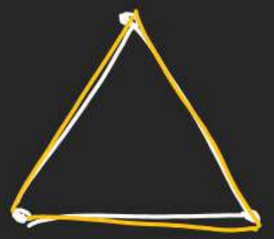
Visualisations & Analysis

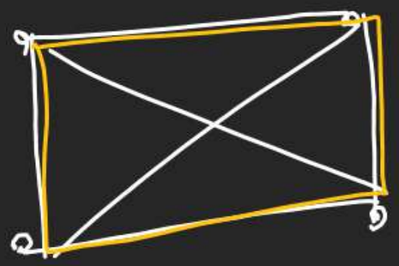


3 pts

No of st. lines.

$^3C_2 = 3$

all 3 sides

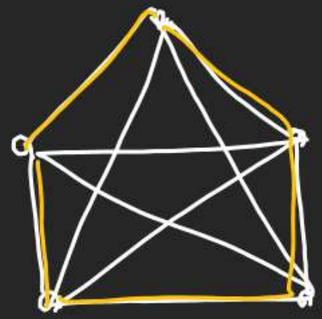


4 pts

No of STL $= {}^4C_2$

$= 6$

4 pts = 4 Sides + 2 diag.

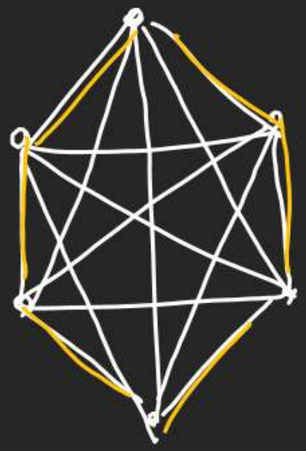


5 pts

No of STL

$= {}^5C_2 = 10$

5 pts = 5 Sides + 5 diag.



6 pts

No of STL

$= {}^6C_2 = 15$

6 pts = 6 Side + 9 diag.

If we make st lines Joining

n pts then we can get n sides

$\hookrightarrow {}^nC_2 = n + \text{diag} \Rightarrow \boxed{\text{Diag} = {}^nC_2 - n} = \frac{n^2 - 3n}{2}$

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Q If a Polygon has 44 diag.
then No of sides =?

$$\frac{n^2-3n}{2}=44$$

$$n^2-3n-88=0$$

$$(n-11)(n+8)=0$$

$$n=-8,11$$

$\times$

$\therefore$ polygon of 11 sides

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DPP-3

Q1 VALEDICTORY

VL AEIO DCTRY

$= 8 \times 4$

Q2 RNIA 2, 3, 4, 5, 6, 0 (2, 3, 0 ×)

400 - 1000 $3 \times 5 \times 4$

60

RA

$3 \times 6 \times 6$

$= 108 - 2$

$= 107$ (400)

(3) Interior Angle = 150°

Exterior = 30°

No of Side $= \frac{360}{30} = 12$

No of diag $= \frac{(12)^2 - 3 \times 12}{2}$

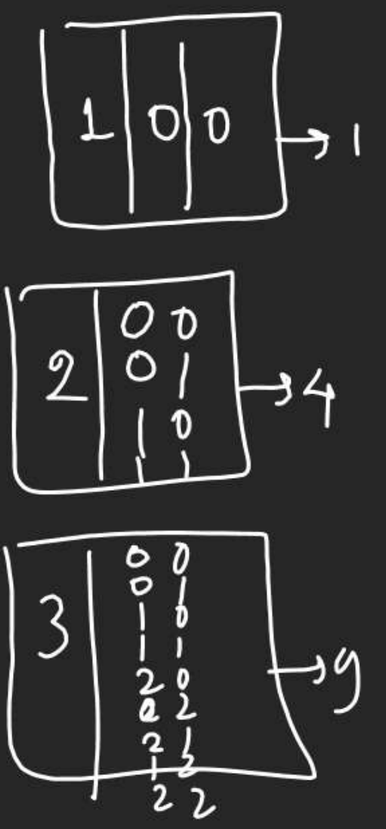
54 diag

Q4 $10C_5 \times 5$

Q5, Q6 Check Notes

Rank

Q7



$1^2 + 2^2 + 3^2 - - + 9^2$

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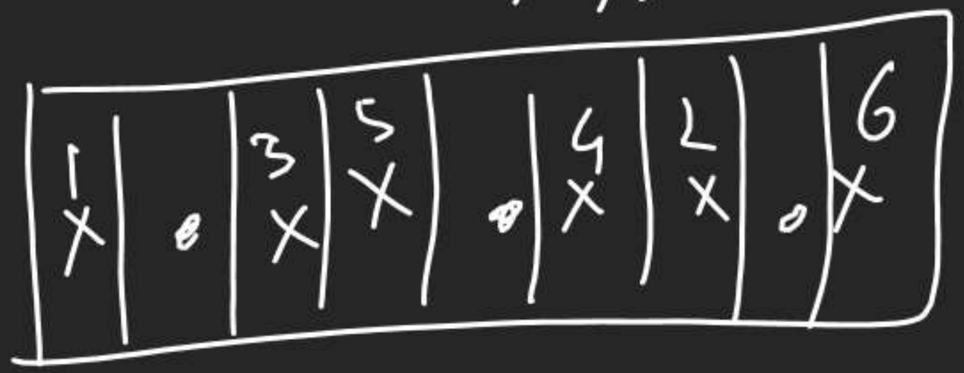
Q 10

1, 2, 3, 4, 5, 6, 7, 8, 9



3, 4 के left, 5 को भी 6 के left

1, 2 के left

${}^{9}C_{2}$ Dbbe → 1 ही treekey
sebharo

$${}^{9}C_{2}\times 1\times {}^{7}C_{2}\times 1\times {}^{5}C_{2}\times 1\times \lfloor\underline{3}$$