MORSE TELEGRAPH
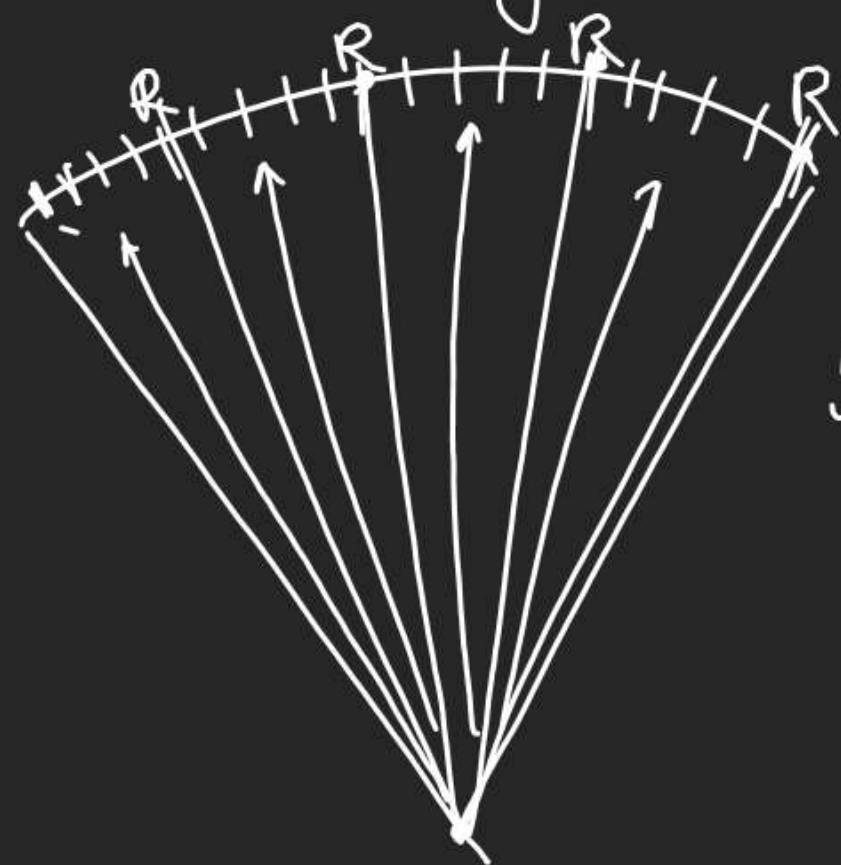
Q In a morse telegraph there are 4 arms & 5 distinct Position including Position of Rest. How many signals can be made Using telegraph

$$5 \times 5 \times 5 \times 5 - 1$$

When all needles are at Rest.

Boat Problem.

Q An 8 Oared boat to be manned with Crew of 11 members. Of whom 3 can steer only, 8 can Row but cannot steer. IHM W the staff can be arranged if 2 of them can Row to left side only.
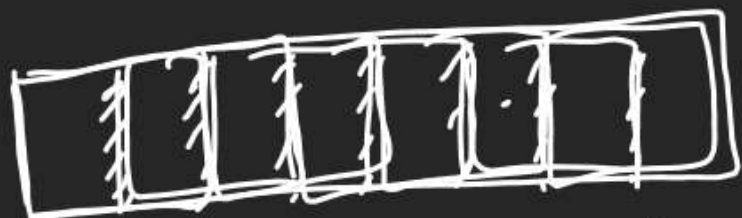

8 Row   3 steer.

$$3_{C_1} \times 1 \times 4_{C_2} \times 2! \times 16$$

Q on a chessboard find

A) No of ways of selecting 2 sq^r having a Side in Common.

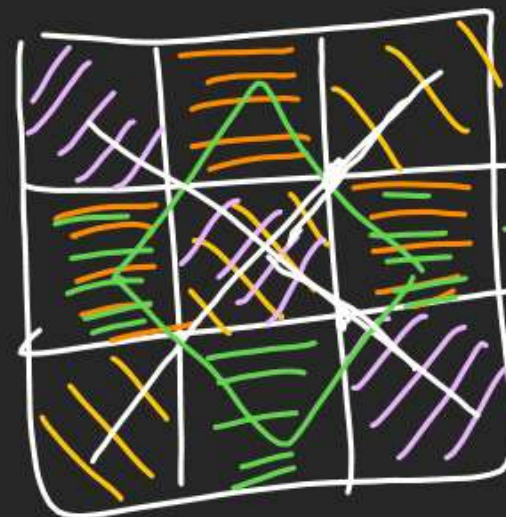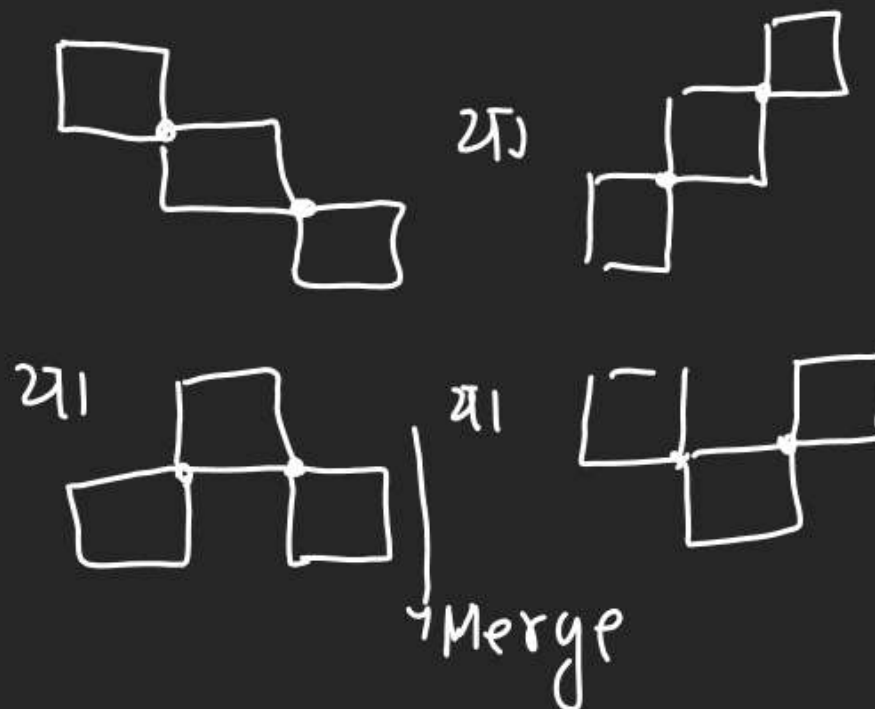B) No W of selecting 3 sq^r such that 2 corners are common

A)

2 Row → 7 Set

No of ways: $7 \times 8 + 7 \times 8$
$= 56 + 56$
$= 112$

(B)

था)

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Merge

→ 3×3 Sg^r में 10 Cases

& Such 3×3 We have 6×6 Cases

So No of ways = 6×6 × 10

3×3 वाले Sof

Divisibility Prob.

Divisible by 2	Ends with 0, 2, 4, 6, 8
by3	Sum of digit ÷ 3.
4	last 2 digit div. by 4
5	last digit = 0/5
6	div. by 2 & 3.
8	last 3 digit ÷ 8
9	Sum div. by 9
10	last digit 0

Q. By $\breve{0}, 1, \breve{2}, 3, \breve{4}, 5$

how many 5 digit no's can be made ÷ by 2.

① RNA

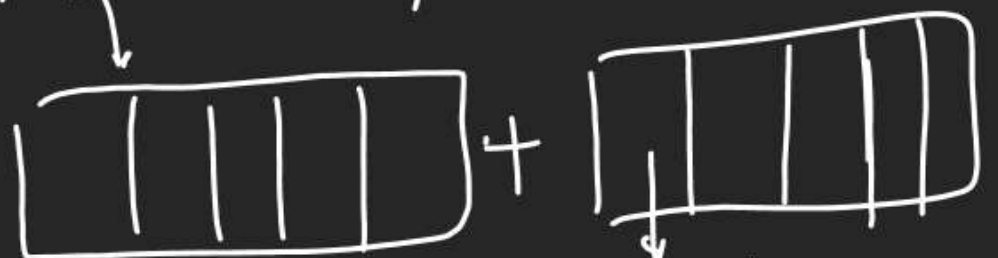$$5 \times 4 \times 3 \times 2 \times 1 \quad + \quad 4 \times 4 \times 3 \times 2 \times 2$$

② R Allowed

$$5 \times 6 \times 6 \times 6 \times 1 \quad + \quad 5 \times 6 \times 6 \times 6 \times 2$$

Q By 0,1,2,3,4,5 forming 5-digit
No. div. by 3.
$\overline{J}$

digits search करने पड़ते है।

2 Sets
only → 1,2,3,4,5 या 0,1,2,4,5

 +

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

$120 + 96$

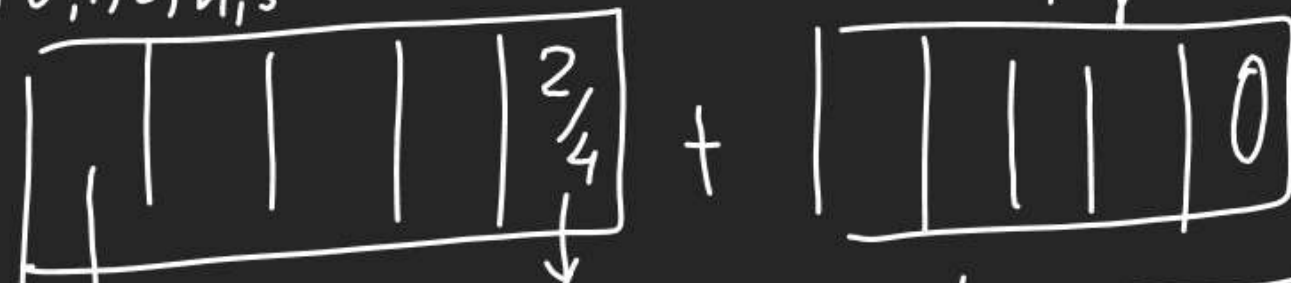Q By 0,1,2,3,4,5 forming
5 digit No div by 6.

① Search digits   ② Arrange them acc.

÷ by 3
1,2,3,4,5 या 0,1,2,4,5   to divisibility of 2

 +

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

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

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

Q By digits 0,1,2,3,4,5

forming 5 digits No ÷ by 4.

first make set of last 2 digits.

÷4

01 x	10 x	20 ✓	30 x	40 ✓	50 x
02 x	12 ✓	21 x	31 x	41 x	51 x
03 x	13 x	22 x	32 ✓	42 x	52 ✓
04 ✓	13 x	23 x	33 x	43 x	53 x
05 x	14 x	24 ✓	34 x	44 ✓	54 x
00 ✓	15 x	25 x	35 x	45 x	55 x
	11 x				

04	40
12	44
20	52
24	00
32	

(B) R A

5 × 6 × 6 × 4

52
12

+

5 × 6 × 6 × 5

RNA

4 × 3 × 2 × 3 +

3 × 3 × 2 × 4
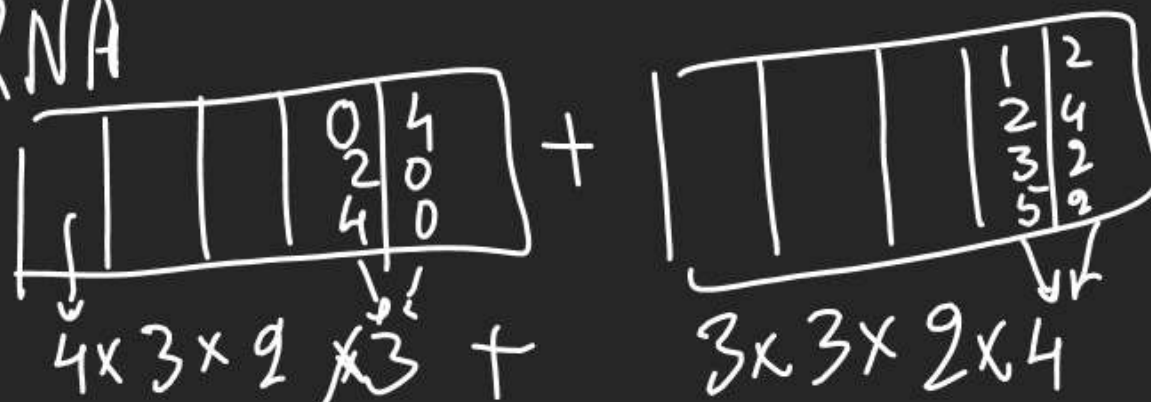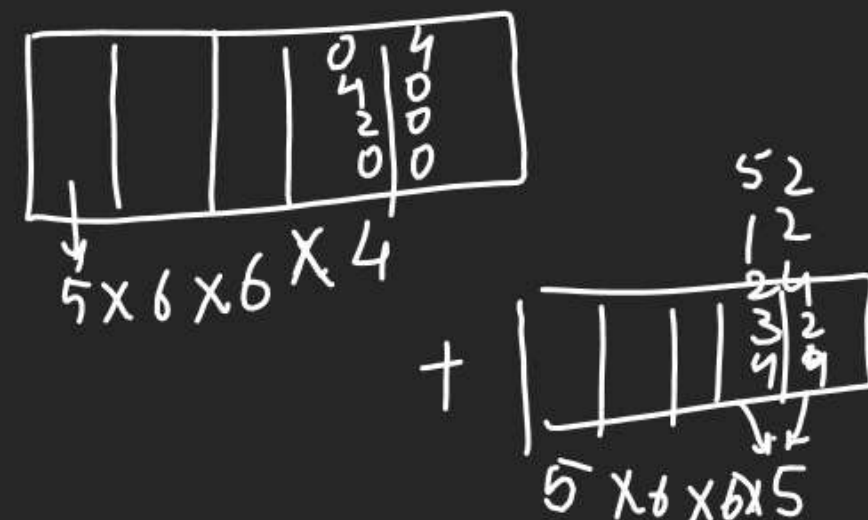
Q With Alphabets of DAUGHTER

find NoW when Relative place
of vowel & Consonants are Unchanged

D A U G H T E R

$= \lfloor 5 \times \lfloor 3$

Q 5 G & 5 B can be seated in HMW

A) If No 2 girls are sitting together.

Gap Method

Boys   then अगर
Bethenge   6 gaps
            से
            5 G

$$\lfloor 5 \times 6_{C_5} \times \lfloor 5$$

(B) When B & G are sitting Alernate?

B_1   B_2   B_3   B_4   B_5

$\lfloor 5 \times \lfloor 5 \times 2$