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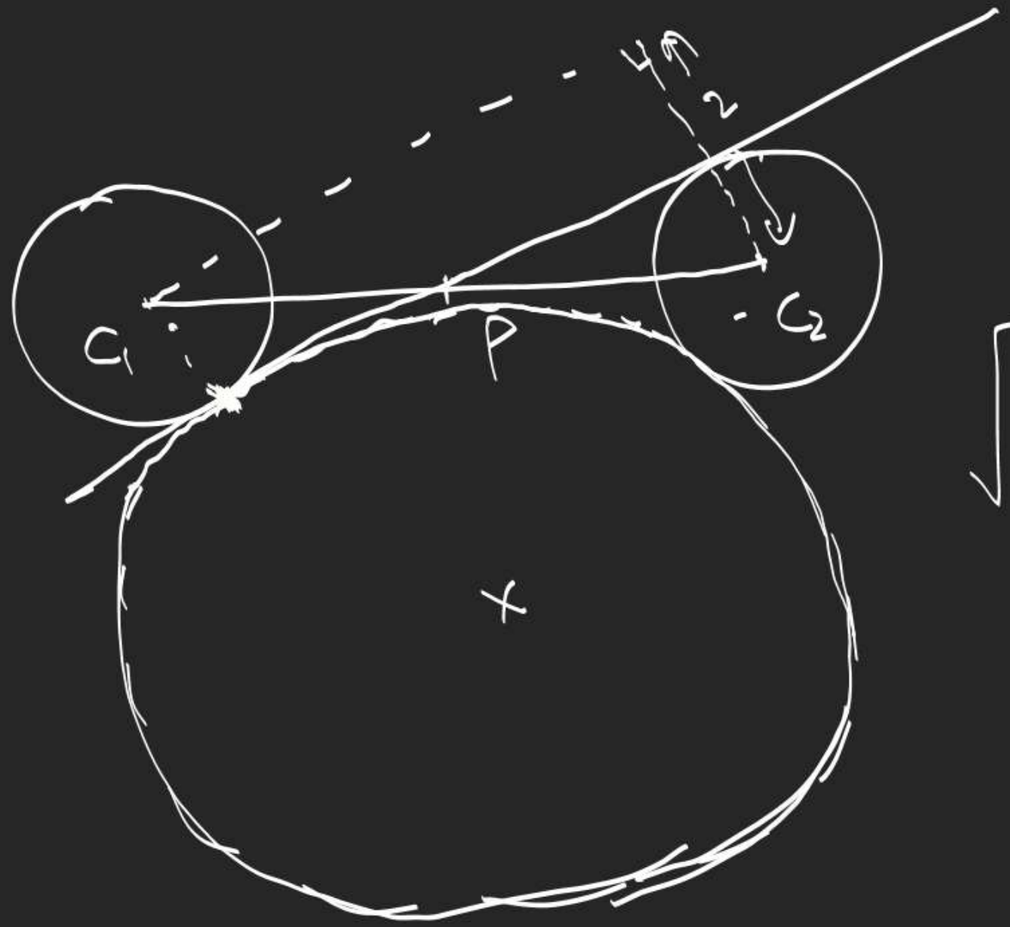

$$\sqrt{6^2 - 2^2} = 2\sqrt{r(1)}$$

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Fundamental Principle of Counting

event A → m different ways

event B → n —"— ——

m x n ways

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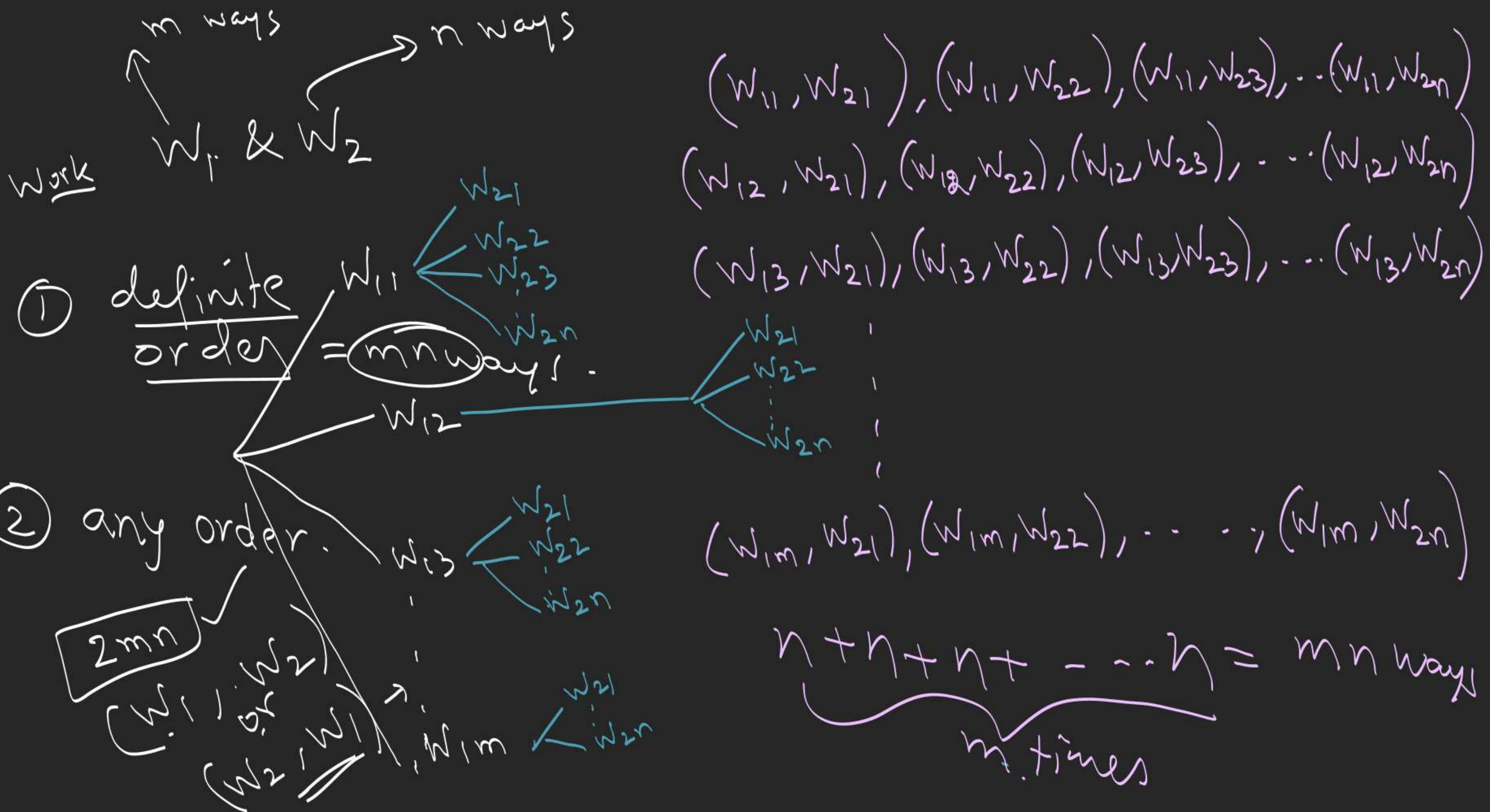

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No. of ways of occurence of all 3 events in definite order A, B, C

any order = $6 m_1 m_2 m_3$

A, B, C → $m_1 m_2 m_3$

A, C, B → $m_1 m_2 m_3$

B, C, A

B, A, C

A, B, → B&C → $m_2 m_3$ ways

C, A, B

C, B, A

A_2 → B&C → $m_2 m_3$ ways

A_3 → B&C → $m_2 m_3$ ways

⋮

A_{m_1} → B&C → $m_2 m_3$ ways

A → m_1 ways

B → m_2 ways

C → m_3 ways

$= \underbrace{m_2 m_3 + m_2 m_3 + m_2 m_3 + \dots + m_2 m_3}_{m_1 \text{ times}}$

$= m_1 m_2 m_3$ ways

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no. of ways of occurence of 'n' events in definite order

$A_1 \rightarrow m_1$ ways

$A_2 \rightarrow m_2$ ways

$A_n \rightarrow m_n$ ways.

$= (m_1 m_2 m_3 \cdots m_n)$ ways

any order $= n!(m_1 m_2 m_3 \cdots m_n)$ ways

$n \times (n-1) \times (n-2) \times (n-3) \cdots 2 \times 1$

no. of orders $= n!$ ← n places

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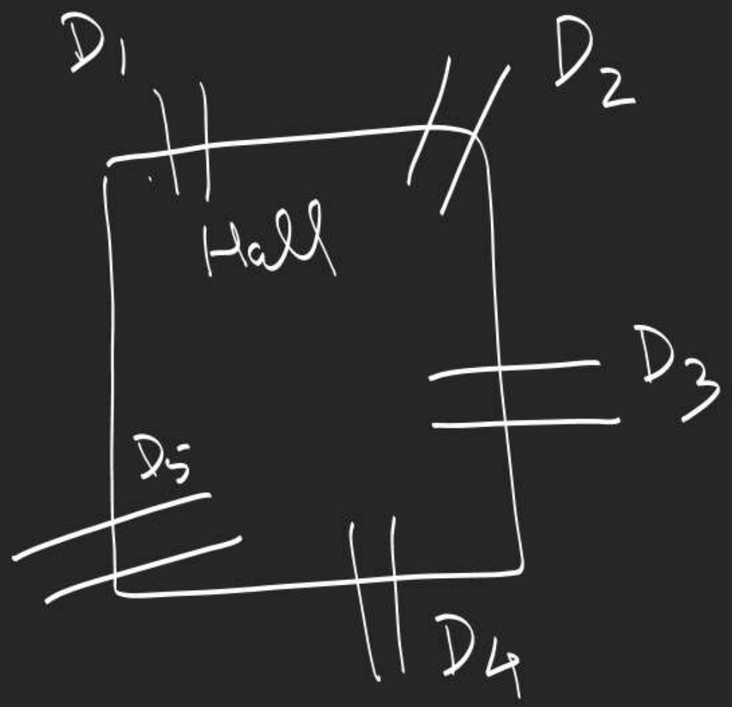

Find no. of ways a person can enter and exit using

(1) any door → 5×5

(2) different doors $= 5 \times 4$

(3) enter using only D_1, D_2, D_3 & exit thru only D_4, D_5.

$= 3 \times 2$

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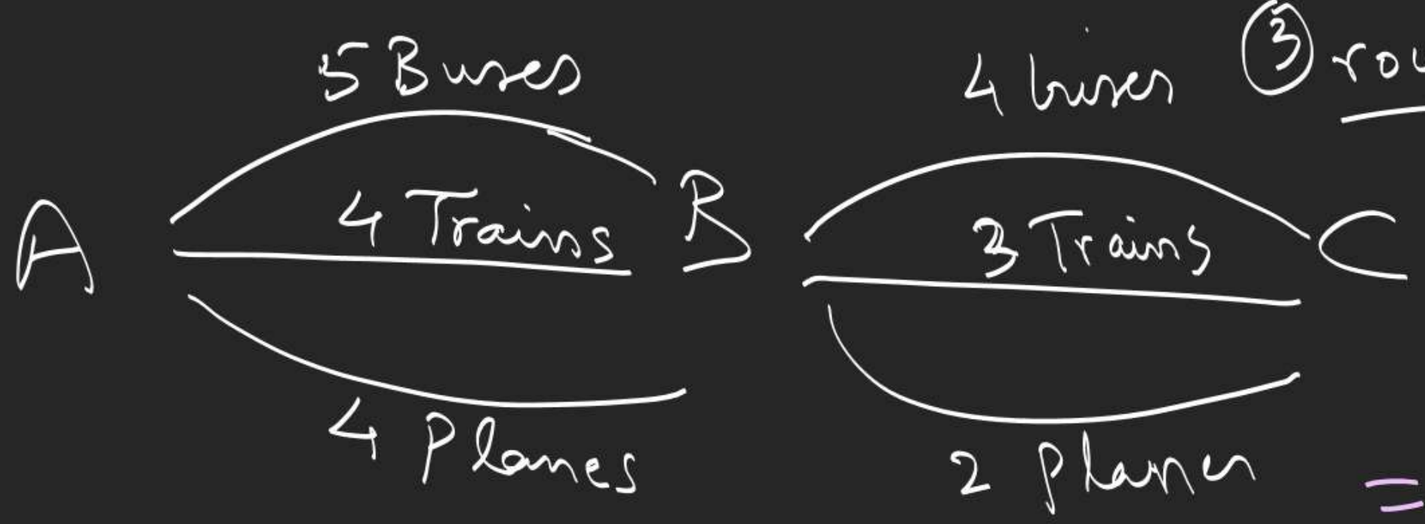

③ round trip using different mode while travelling in same direction

$= (77)^2$

Find no. of ways a person can travel from A to C via B using

① any mode of transportation $= 13 \times 9$

② different mode of transportation $= 5(3+2) + 4(4+2) + 4(4+3)$

$= 77$

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10 T/F problems.

how many sequence of answers are possible.

Q1 Q2 Q3 . . . . Q10

$2 \times 2 \times 2 \times 2 \times \ldots \times 2$

2^{10} ways

17 - 30