

Ultimate Cheat Sheet: Puzzles & Seating Arrangement

Master Logical Reasoning with Advanced Strategies and Frameworks

1. Fundamental Notations

Success in seating arrangements relies heavily on translating ambiguous statements into precise mathematical constraints.

- **Facing Center (Inward):** Left is clockwise, Right is counter-clockwise.
- **Facing Outside (Outward):** Left is counter-clockwise, Right is clockwise.
- **Immediate Neighbor:** Person sitting strictly adjacent to the reference entity.
- **Gap/Between:** k people sitting between A and B implies distance of $k + 1$ positions.

2. Linear Seating Arrangements

Single Row

- **Total Persons:** If person A is m^{th} from the left and n^{th} from the right, Total = $m + n - 1$.
- **Interchange Method:** Track specific positions before and after swapping to solve relative positioning quickly.

Double Row (Parallel Rows)

- Two rows facing each other (e.g., Row 1 facing North, Row 2 facing South).
- **Crucial Tip:** Always align facing directions carefully before assigning left/right to avoid rotational errors.

3. Circular Polygonal Arrangements

Circular Tables

- **Symmetry:** All positions are identical initially. Fix the first person to eliminate rotational redundancy ($n!$ becomes $(n - 1)!$).
- **Opposite Positions:** For n even, person i is directly opposite to $i + \frac{n}{2}$.

Square / Rectangular Tables

- Pay close attention to whether people sit **at the corners** or **along the sides**.
- Corners usually face outward/inward with respect to diagonal axes, affecting immediate neighbors.

4. Box Floor Puzzles

- **Stack Methodology:** Fix absolute floors (1 to n) or absolute box numbers first.
- **Extreme Constraints:** Utilize clues like " $Box A$ is immediately above B " or " $Three boxes$ are between X and Y " to create rigid anchor blocks.

5. Golden Rules for Solving

1. Categorize Clues:

- **Definite Clues:** Direct placements (e.g., " A sits at extreme left").
- **Negative Clues:** Restrictions (e.g., " B does not sit next to C ").

- **Connector Clues:** Relative links (e.g., " D is second to the right of E ").

2. Case-Building (Hypothesis Testing):

When left with binary possibilities (e.g., Case 1 / Case 2), branch out early. False assumptions lead to quick contradictions.