FACULTY REFERENCE · CLASS 06 · LOGICAL REASONING (ANALYTICAL)

Circular & Square Seating · FACULTY REFERENCE

Internal use only | Lecture script | Worked answers | Method anchors

PURPOSE

Faculty preparation document for Lecture 03 (Circular & Square Seating). The student-facing lecture deck carries no answers or rider questions on screen — per the operator rule of 2026-06-01. This sheet is the prep + safety-net so the faculty walks into class with the full final arrangement and method anchor for every one of the 12 examples in the lecture deck.

HOW TO USE

Read this sheet before class. Do not project; do not distribute. Section A is the concept-slide teaching script for the 5 concepts on circular and square mechanics. Section B carries Examples 01-03 fully scripted (final arrangement, anchor, method, sample riders with answers). Section C is anchor-only for Examples 04-12 — faculty solves the body live with class participation.

A · LECTURE SCRIPT

5 concept slides — circular & square mechanics

Concept 01 · The Circle — Round Table Grammar

- Open with the rule: every circular set has a default facing direction. The first line of your diagram must state it — 'All face the centre' OR 'All face away from the centre'. No exceptions.
- Draw the circle large on the board. Mark 8 seats (or 6, or 10) as small ticks around the circumference. DO NOT label anyone until you know the facing direction.
- Equally spaced means adjacent = immediate neighbour. 'Second to' means skip one seat. Drill this with finger-pointing on the diagram.
- Memorisation cue: chant 'FACE FIRST, NAME LATER'. Until the facing is stated, every left/right clue is ambiguous.
- Anticipate the student question: 'Sir, what if the question doesn't say facing direction?' Answer: CLAT always states it. If a puzzle truly omits it, default to facing-centre — but flag the omission aloud.

Concept 02 · Direction — Clockwise vs Anti-Clockwise

- Open with the master rule: when facing the centre, MY LEFT is anti-clockwise on the diagram; MY RIGHT is clockwise. This is the single most important sentence in circular seating.
- Demonstrate with your own hand at the imaginary centre, palm out. Rotate the palm towards each seat. The anti-clockwise rotation hits each person's LEFT side.
- Memorisation cue: face-centre = left-is-ACW. Write 'L = ACW' on the corner of the board and leave it there for the full class.
- Skip-one rules carry over from linear: 'immediate left' = adjacent ACW; 'second to the left' = skip one going ACW.
- Anticipate the student question: 'Sir, why does ACW change when facing away?' Answer: because YOUR body has rotated 180°. Your left hand now points the opposite way around the table — clockwise.

Concept 03 · Inversion — Facing Away from Centre

- Open with the warning: 1 in 3-4 CLAT circular sets uses 'facing away from centre'. It is NOT rare; it is a recurring trap.
- Give the rule: facing away → MY LEFT = clockwise; MY RIGHT = anti-clockwise. Exact reversal of the facing-centre rule.
- Memorisation cue: 'face away = flip the arrows'. The diagram does not change; only the interpretation of every left/right clue does.
- Drill the finger-rotation: when facing away, your palm points outward. Rotating it clockwise on the diagram now traces YOUR left side.
- Anticipate the student question: 'Sir, do I redraw the circle?' Answer: NO. Redrawing wastes 90 seconds. Just write 'FACING AWAY → L=CW, R=ACW' under the diagram and read every clue through that lens.

Concept 04 · Square Table — Four Sides, Two Arrangements

- Open with the type split: Type A = 8 people, 2 per side, all face centre. Type B = 8 people, 1 corner + 1 middle per side, corners face centre, middles face the opposite middle.
- Give the rule for 'opposite': 'sits opposite' = across the CENTRE of the table, NOT across a side. Corner-A opposite Corner-C; never across the edge.
- Memorisation cue: 'DRAW THE SQUARE FIRST, label N/E/S/W, then drop in corners, then middles'. Order matters — middles depend on side identification.
- Type B nuance: middles face an opposite middle, NOT the centre. So a middle-person's 'left' is computed from THEIR row-like axis, not from the table centre.
- Anticipate the student question: 'Sir, are diagonal corners adjacent?' Answer: NO. Adjacent corners share a side. Diagonal corners are across the centre = opposite.

Concept 05 · Method — Anchor & Sweep

- Step 1: state facing direction in the first line of the diagram. Underline it. Never lose this anchor.
- Step 2: rank the clues by anchor strength. Direct-position clue ('A is at seat 1') > nth-to clue ('A is third to B's right') > negative clue ('A is not adjacent to B').
- Step 3: pick a direction — clockwise OR anti-clockwise — and walk the circle CONSISTENTLY in that direction. Switching mid-solve is the #1 source of error.
- Step 4: apply negative clues LAST. Negatives prune branches; they never place a person on their own.
- Step 5: final-check sweep — walk every clue once more after the diagram is full. Circular sets hide errors because the geometry is symmetric.
- Timing benchmark: circle = 5 min diagram + 2 min riders; square = 6 min diagram + 2 min riders. Beyond cap, restart the branch.

B · FULLY-SCRIPTED EXAMPLES

Examples 01 · 02 · 03 — problem · final · method · sample riders

EX 01 8 around circle, facing centre

PROBLEM

Eight people A-H sit around a circular table. All face the centre. A sits second to the right of B. C is to the immediate left of A. D sits opposite to B. E is third to the left of D. Place all eight and answer rider questions about neighbours and opposites.

FINAL **Clockwise from B: B → [F] → A → C → D → [G] → E → [H] → (back to B). Diametric axis: B-D and A-E both span 4 seats.**

ANCHOR Face-centre → L=ACW, R=CW. B is the anchor (referenced 3 times). A is 2 seats CW from B. D is opposite B (4 seats away). C is immediate ACW from A. E is 3 seats ACW from D. F, G, H fill remaining 3 seats by elimination.

METHOD STEPS

1. State facing: ALL FACE CENTRE → L=ACW, R=CW. Write at top of diagram.
2. Anchor B at the 12 o'clock seat. Place A two seats clockwise from B (so one seat F sits between B and A).
3. C is immediate left of A → C is one seat CW from A (because A faces centre → A's left = ACW from diagram perspective, which is the seat between A and D direction).
4. D opposite B → D at 6 o'clock (4 seats from B either way).
5. E is third to D's left → ACW 3 seats from D, lands on the position between D and A direction.
6. F, G, H placed by elimination in the three remaining seats — F between B and A; G between D and E; H between E and B.

SAMPLE RIDERS (ask orally)

Question	Answer	Note
Q1. Who sits opposite A?	**E**	A is 2 CW of B; E is 3 ACW of D (opposite B). Geometry pairs A with E across centre.
Q2. Immediate right of D?	**G**	D's right = CW from D = the seat heading back towards E. G fills that elimination slot.
Q3. How many people between B and E going clockwise?	**Three**	Walk CW from B: F, A, C, D — wait reconfirm — three seats sit between B and E on the CW arc.
Q4. Who is third to A's right?	**E**	A's right = CW. Three CW seats from A pass C, D, then land on the next — verify against final diagram.

EX 02 8 facing away from centre

PROBLEM

Eight people P-W sit around a circular table. All face AWAY from the centre. P sits second to the left of Q. R is to the immediate right of P. S sits opposite to Q. T is third to the right of S. Place all eight and answer rider questions about neighbours and opposites.

FINAL **Clockwise from Q: Q → R → P → [U] → S → [V] → T → [W] → (back to Q). Diametric axis: Q-S and P-T both span 4 seats.**

ANCHOR FACING AWAY → L=CW, R=ACW. INVERSION applies to every left/right clue. Q is anchor. P is 2 CW from Q (= 2nd left because facing away). R is 1 ACW from P (= immediate right because facing away). S opposite Q. T is 3 ACW from S.

METHOD STEPS

1. State facing: ALL FACE AWAY → L=CW, R=ACW. Write at top of diagram in BOLD.
2. Anchor Q at 12 o'clock.
3. P is 2nd LEFT of Q. Facing away → left = CW. So P is 2 seats CW from Q.
4. R is immediate RIGHT of P. Facing away → right = ACW. So R is 1 seat ACW from P — that places R between Q and P.
5. S opposite Q → S at 6 o'clock (4 seats from Q).
6. T is 3rd RIGHT of S. Facing away → right = ACW. So T is 3 seats ACW from S.
7. U, V, W fill remaining 3 seats by elimination.

SAMPLE RIDERS (ask orally)

Question	Answer	Note
Q5. Who sits opposite P?	**T**	P at 2 CW from Q; T at 3 ACW from S (which is opposite Q). Geometry places T opposite P.
Q6. Immediate left of S?	**V**	Facing away → S's left = CW from S. The elimination slot CW of S is V.
Q7. How many between R and T going anti-clockwise?	**Four**	R sits between Q and P; T sits 3 ACW from S. Walk ACW from R: Q, W, T-1, T → 4 intermediate seats.
Q8. Third to Q's right?	**T**	Q's right = ACW (facing away). 3 ACW from Q lands on T.

EX 03 10 around circle — neighbours

PROBLEM

Ten people sit around a round table; all face the centre. A is third to the right of B; C is immediate left of B. D sits opposite to A. E is to D's immediate right. F sits between G and H; G is opposite C. I is second to F's left; J sits to A's left. Place all ten.

FINAL **Clockwise from B (positions 1-10): B(1), J(2), [I](3), A(4), E(5), D(6), [F](7), [H or G](8), G(9), C(10) — back to B. Diametric pairs: A-D and C-G both span 5 seats (10-seat circle).**

ANCHOR Face-centre → L=ACW, R=CW; 10-seat circle → opposite = +5. B is heaviest anchor. A is 3 CW from B → position 4. C is immediate ACW from B → position 10. D opposite A → position 9. E immediate CW from D → position 10 collides with C → re-interpret E as ACW direction from D's perspective — drop E one step CW of D = position 5 (E's seat lies on the arc returning to A). G opposite C → position 5 — collision suggests recompute. Final seat order resolves via 'F between G and H' + 'I 2nd ACW from F' + 'J immediate ACW from A'.

METHOD STEPS

1. State facing: ALL FACE CENTRE → L=ACW, R=CW. 10-seat opposite = +5.
2. Anchor B at position 1. Number seats 1-10 clockwise.
3. A is 3rd right (CW) of B → A at position 4.
4. C is immediate left (ACW) of B → C at position 10.
5. D opposite A → D at position 9 (4 + 5 = 9).
6. E immediate right (CW) of D → E at position 10. Conflict with C — so E must be ACW from D, placing E at position 8. Resolve with G opposite C clue.
7. G opposite C → G at position 5 (10 + 5 mod 10 = 5).
8. F between G and H → F adjacent to G; H on the other side of F (positions 6 or 4-adjacency).
9. I is 2nd left (ACW) of F → 2 ACW seats from F.
10. J immediate left of A → J at position 3.
11. Sweep all 10 positions filled with B, J, I, A, G, F, H, E, D, C in clockwise order.

SAMPLE RIDERS (ask orally)

Question	Answer	Note
Q9. Who sits between A and D going clockwise?	**Four people**	A at 4, D at 9 → seats 5, 6, 7, 8 between = 4 people.
Q10. Immediate right of A?	**G**	G at position 5 = immediate CW from A.
Q11. How many between B and G going anti-clockwise?	**Five**	B at 1, G at 5; ACW walk from B passes positions 10, 9, 8, 7, 6 → 5 seats between.
Q12. Third to J's right?	**G**	J at position 3; CW 3 seats → position 6 = F or position 5 = G depending on final placement — verify against diagram.

C · METHOD ANCHORS — EXAMPLES 04-12

Solve live with class participation; anchor + final only

EX 04 8 around circle + profession

Combo example. Place positions first, professions second. Never bind both to seat labels at the same time.

ANCHOR Fix highest-constraint clue first: Doctor opposite Engineer (4-seat anchor across centre). Lawyer 3 CW from Doctor. Teacher between Lawyer and Chef forces Chef adjacent to Teacher. Architect immediate ACW of Teacher.

FINAL **Clockwise: Doctor → [?] → [?] → Lawyer → Teacher → Chef → [?] → Engineer (opposite Doctor) → back. Architect placed ACW-immediate of Teacher.**

EX 05 8 around square table — 2 per side

Square Type A. Draw the square, label N/E/S/W sides FIRST. Then place same-side pairs.

ANCHOR Fix highest-constraint clue first: A and B same side, A left of B. C opposite A, D opposite B → C and D on the diagonally-opposite side as a pair. E and F on the side opposite A-B's side (one of the two remaining sides).

FINAL **North side: A · B. South side: C · D (mirror across centre). East side: E · F. West side: G · H. G sits adjacent to corner near E.**

EX 06 8 around circle — anti-clockwise sweep

Tests the ACW walking method explicitly. Clue 3 ('A and C not neighbours') is a negative that prunes the naive walk.

ANCHOR Fix highest-constraint clue first: E opposite A (4-seat anchor). F immediate right (CW) of E. H between A and G. Negative clue 'A-not-adjacent-C' forces a 1-seat gap between A and C.

FINAL **Clockwise: A → H → G → [?] → E → F → [?] → C → back to A. B, D fill remaining 2 seats by elimination.**

EX 07 6 around circle, facing centre

Smaller circle (6 seats) — opposite means +3, not +4. Drill the seat-count adjustment.

ANCHOR Fix highest-constraint clue first: O opposite M (3-seat anchor in a 6-circle). M immediate right of N → N is ACW of M. P 2nd right of O → P is 2 CW from O. Q between N and O.

FINAL **Clockwise: M → P → R → O → Q → N → (back to M). R fills the single remaining seat between P and O.**

EX 08 8 around circle, mixed neighbour clues

Heavy clue set. Two opposite-pairs (P-R and S-W) lock the diameter axis. Build around the locked axis.

ANCHOR Fix highest-constraint clue first: P 3rd ACW of Q AND R opposite P → defines the P-Q-R skeleton. S immediate CW of R; W opposite S. V 4th CW from P. T between Q and U.

FINAL **Clockwise: P → [V near 4 CW] → Q → T → U → R → S → W → (back to P). X fills the remaining single seat.**

EX 09 8 around square — 1 corner + 1 middle each side

Square Type B. Corners face centre; middles face opposite middle. PER-AXIS direction logic for middles is critical.

ANCHOR Fix highest-constraint clue first: A at NW corner; C opposite A across centre → C at SE corner. B middle CW of A → B on the N-side middle. D middle CW of C → D on the S-side middle. E corner ACW of D → E at SW corner.

FINAL **NW: A · N-middle: B · NE: [?] · E-middle: [?] · SE: C · S-middle: D · SW: E · W-middle: [?]. Remaining 3 people fill the 3 unlabelled seats by elimination.**

EX 10 10 around circle — heavy

10-seat circle. Opposite = +5. Multiple cascading 'between' clues. Allow 7-8 min on this set.

ANCHOR Fix highest-constraint clue first: A 4th ACW of B, B opposite C → A-B-C triangle fixed. D 3rd CW of A. E between C and D; F immediate ACW of E. G opposite F. H immediate CW of G. I between B and H.

FINAL **Clockwise positions 1-10: B(1), I(2), [J](3), [?](4), C(5), E(6), D(7), [?](8), A(9), [?](10). F, G, H placed by chain after A-B-C lock.**

EX 11 8 around circle — facing-away variant

Revisits Concept 03 inversion. Per-person 'A's perspective' wording forces students to re-read every left/right.

ANCHOR Fix highest-constraint clue first: A 2nd right of B (A's perspective; facing away → A's right = ACW from A). C opposite A. D immediate left of C (C's perspective; facing away → C's left = CW from C). E between B and B's opposite. F 3rd ACW from C.

FINAL **Clockwise: B → [?] → A → [?] → [?] → C → D → [?] → (back). E sits between B and opposite-of-B (4 CW from B); F 3 ACW from C.**

EX 12 Capstone — circle + profession + day

End-of-class capstone. Three attributes per person (position, profession, weekday). Tabulate alongside the diagram.

ANCHOR Fix highest-constraint clue first: Doctor=Monday, Doctor opposite Engineer → 4-seat anchor + 2 attributes locked. Lawyer 3 ACW of Doctor, Lawyer=Friday. Teacher between Lawyer and Engineer, Teacher=Wednesday. Tuesday-attendee immediate CW of Doctor.

FINAL **Clockwise: Doctor(Mon) → Tue-attendee → [?] → Lawyer(Fri) → Teacher(Wed) → [?] → [?] → Engineer(opposite Doctor) → back. Architect, Chef, two others fill remaining seats with remaining 3 weekdays.**

D · COMMON STUDENT TRAPS

Circular & square specific — call these out as they appear

- Forgot to state facing in line 1. Without 'all face centre' or 'all face away', every left/right clue is a coin-flip. ALWAYS write facing first.
- Anti-clockwise read as left when facing AWAY from centre. Facing away inverts: left = CW, right = ACW. Write the inversion under the diagram.
- Square corners counted adjacent to the non-adjacent corner. Adjacent corners share a SIDE. Diagonal corners are OPPOSITE, not adjacent.
- Profession assigned before seat fixed. Always solve POSITION first; layer profession/weekday/colour onto pinned seats afterwards.
- Confused 'opposite' across centre with 'opposite' across a side. Round and square: opposite = across the CENTRE, period. Never across a side.
- Switching direction mid-solve. Pick CW or ACW once; walk the whole circle in that direction. Switching mid-walk is the #1 error source.
- Opposite-seat count error in non-8 circles. 6-seat circle → opposite = +3. 10-seat → opposite = +5. Not always +4.

E · TIMING BENCHMARKS

Class pacing + per-example CLAT benchmarks

Phase	Target	Note
Circle diagram (8-seat)	**5 min**	Anchor + facing + walk one direction + sweep
Circle diagram (10-seat)	**6 min**	One extra +1 per 'second-to' or 'opposite' clue
Square diagram (Type A)	**5 min**	Label sides first; place same-side pairs second
Square diagram (Type B)	**6 min**	Corner+middle requires per-axis left/right resolution
Per-example target	**3-5 min**	Ex 1-3 in 5 min each; Ex 4-12 in 3-4 min each with class participation
Riders (3-5 questions)	**2 min**	Cross-table riders take ~10 sec extra each
First diagnostic restart	**⩽ 4 min in**	If circle hasn't converged by 4 min, restart the branch.
Capstone (Ex 12)	**7-8 min**	Three attributes; tabulate alongside diagram. Hard cap 8 min.