

POSITION, ORDER & RANKING

CORE PRINCIPLE

Every ranking question reduces to a **numerical relationship**.

Rank = a position, not the count of people before that position.

(e.g., “7th from the left” means **6 people stand before** that person, but the **rank itself is 7**).

Convert every **verbal clue into numbers** before calculating.

QUICK-REFERENCE FORMULA SHEET

Situation

Formula



Total (opposite ends)

$$L + R - 1$$



Opposite-end rank

$$N + 1 - R$$



People between (same side)

$$|R_1 - R_2| - 1$$



Positions apart (same side)

$$|R_1 - R_2|$$



Middle (odd N)

$$(N + 1) / 2$$



Two middles (even N)

$$N/2, N/2 + 1$$



Left rank + Right rank

$$N + 1$$

MASTER THE NOTES? TAKE THE QUIZ



ALL QUESTION TYPES

Guidance, Trick & Example

Understand
Practice
Score High!

Concept / Question Type

Short Trick / Formula

Worked Example

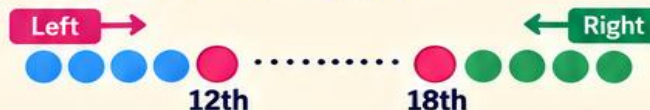
1 Total from opposite-end ranks



$$L + R - 1$$

Add the ranks from both ends and subtract 1.

12th from left, 18th from right
→ $12 + 18 - 1 = 29$ total



Total = 29

2 Rank from the opposite end



$$N + 1 - R$$

Subtract the given rank from (Total + 1) to get the rank from the opposite end.

50 students, 17th from left
→ $51 - 17 = 34$ th from right



34th from right

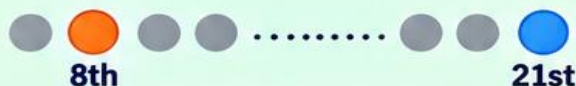
3 People between (same direction)



$$|P_1 - P_2| - 1$$

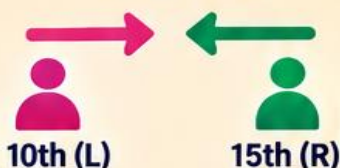
Find the difference between the ranks and subtract 1 to get the number of people between them.

8th & 21st from left
→ $21 - 8 - 1 = 12$ between them



12 people between

4 Ranks from opposite directions



Convert both to the SAME side first, then subtract.

A = 10th (L), B = 15th (R), N = 40
→ B = 26th (L); between = $26 - 10 - 1 = 15$



15 people between

5 "X places to the right/left"



Add/subtract X directly;
"X between" means
gap = $X + 1$.

15th from left + 7 to the right
= 22nd from left



22nd from left

MASTER THE NOTES? TAKE THE QUIZ

Concept / Question Type

Short Trick / Formula

Worked Example (with diagram)

6 Interchange of positions



They simply take each other's rank!

After swap, each person simply takes the other's original rank.

A = 12th, B = 25th swap
→ A becomes 25th (L)



7 Movement within the row



Left –
rank decreases

Right +
rank increases

**New rank = Old rank
± steps moved
(right +, left –)**

20th, moves 6 left
→ $20 - 6 = 14$ th



8 People joining the row

Joining
ahead increases
rank number!



Joining ahead of a person increases their rank number; joining behind leaves it unchanged.

15th (L), 4 join ahead
→ $15 + 4 = 19$ th (L)



New rank = 19th

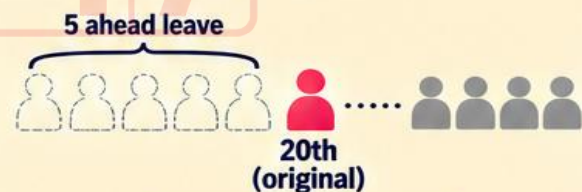
9 People leaving the row

Leaving
ahead decreases
rank number!



Leaving ahead decreases the rank number; leaving behind leaves it unchanged.

20th (L), 5 ahead leave
→ $20 - 5 = 15$ th (L)



New rank = 15th

10 Overtaking

You overtake X
→ you take X's rank!



Overtaking → take the overtaken person's exact rank.

You overtake X → you take X's rank. Someone overtakes you → your rank number increases.

A = 14th overtakes the 8th-ranked person
→ A becomes 8th



A's new rank = 8th

MASTER THE NOTES? TAKE THE QUIZ

Concept / Question Type

Short Trick / Formula

Worked Example (with diagram)

11 Middle position (odd total)



$$(N + 1) / 2$$

For an odd number of people, the middle position is $(N + 1) / 2$.

41 students $\rightarrow$ middle = 21st from either end



12 Middle positions (even total)



$$N/2 \text{ and } N/2 + 1$$

For an even number of people, there are two middle positions: $N/2$ and $N/2 + 1$.

40 students $\rightarrow$ middle = 20th and 21st



13 Highest/lowest conversion



1st from top = highest rank

Nth from top = 1st from bottom

1st from an end = extreme rank; Nth from top ($N = \text{total}$) = 1st from bottom.

35th from top in a group of 35 $\rightarrow$ 1st from bottom



14 Ranking with ties



Ties? Check the convention!

Never assume a tie convention (competition vs dense ranking) unless stated.

Marks: 95, 90, 90, 85

Competition ranking (1224)

95 $\rightarrow$ 1st
90 $\rightarrow$ 2nd
90 $\rightarrow$ 2nd
85 $\rightarrow$ 4th

Dense ranking (1234)

95 $\rightarrow$ 1st
90 $\rightarrow$ 2nd
90 $\rightarrow$ 3rd
85 $\rightarrow$ 4th

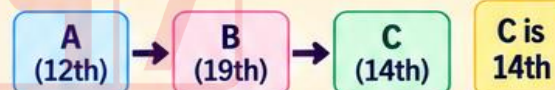
Rank of 90's depends on the stated convention

15 Multiple linked conditions



Build a simple numeric chain instead of drawing the full arrangement.

$$A = 12 \rightarrow B = A + 7 = 19 \rightarrow C = B - 5 = 14$$



16 Unknown total, given "between" count



Use an equation to find N!

Convert to one side, form an equation, solve for N.

A = 16th (L), B = 19th (R), 12 between



$$N - 18 - 16 - 1 = 12 \rightarrow N = 47$$

Total (N) = 47

17 Circular arrangement

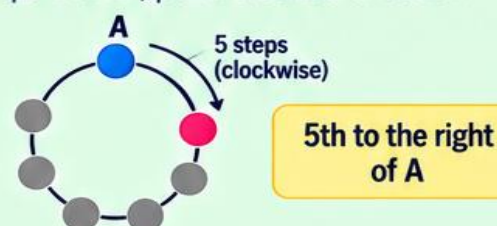


Move clockwise or anticlockwise!



Do NOT use $L + R - 1$; use clockwise/anticlockwise steps from a fixed reference person.

"5th to the right of A" = 5 clockwise steps from A, per the stated direction.



MASTER THE NOTES? TAKE THE QUIZ

Follow these steps to solve any question with ease!

FIVE-STEP SOLVING METHOD

1 Identify the reference direction (left/right, top/bottom, front/back).



Know the base direction

2 Write the known rank(s) numerically.



Convert the clues to numbers

3 Convert to a common direction using $N + 1 - R$, where needed.



Bring everything to the same side

4 Apply the relevant formula/trick from the table above.



Use the right tool

5 Check rank lies between 1 and N ; -1 applied where required; "between" not confused with "apart".



Verify your answer

COMMON MISTAKES TO AVOID

1 Forgetting to subtract 1 when adding two opposite-end ranks to get the total.



2 Directly subtracting ranks measured from opposite ends without converting first.



3 Treating "X people between" as the same gap as "X places apart" (the true gap is $X + 1$).



4 Assuming an overtaking person's new rank is one more/less than the overtaken rank, instead of exactly equal to it.



5 Applying the linear formula $L + R - 1$ to circular arrangements, where it does not generally apply.



Avoid these pitfalls!

ONE-LINE MASTER SHORTCUT

Same direction → compare directly.

Opposite direction → convert first.

'Between' → subtract 1.

Opposite-end rank → use $N + 1 - R$.

Overtaking → take the overtaken person's exact rank.



PRACTICE SOLVE SCORE HIGH!

SIMPLE STEPS BIG RESULTS!

MASTER THE NOTES? TAKE THE QUIZ