Ranking and Ordering

In ordering and ranking arrangement questions, position/rank of a person from left-right/top-bottom of a row/class is to be determined or rank/position is given & total no. of persons is to be calculated.

Note: 1) Position of a person or things in order is known as Rank. 2) Position can be from sides of row. 3) Rank is always from top or bottom of the row.

a) Total no. of persons= [(No. of person from top + No. of person from bottom) - 1]

b) Total no. of persons= [(No. of person from left + No. of person from right) - 1]

TRICK 1: If you have to find the Rank of a person in a queue:

Total No of persons - position (top/bottom/left/right) +

Eg. Amit ranks 15th from the left in a class of 50 students find his rank fromm right end.
Solution: [Total no of students – no of students from left] + 1
= [50 - 15] + 1
= 35+1 =36

TRICK:
If the positions of two persons are given from opposite ends and the total number of persons are also known, then two cases will arise to find the number of persons between these two persons.
a) Overlapping: the sum of positions of the two persons from opposite ends is more than total number of persons.
b) No-overlapping: the sum of positions of
the two persons from opposite ends is less than total number of persons.

Type (a): Overlapping

No. of person between two different person = [(position of person from left + position of person from right) - Total no. of person] -2

Example: Mohan is sitting 35th from the left end and Sohan is sitting 22nd from the right end of the row. If there are 54 students in a row, find the no. of person sitting between Mohan and Sohan.
Solution:
Sum of position of Mohan & Sohan from opposite ends= 35+22=57,
i.e. more than the total number of students (>54)
Therefore,
No. of students between Mohan & Sohan= [(position of Mohan from left + position of Sohan from right) - Total no. of students] -2
⇒ [(35+22)-54]-2 .
⇒ (57-54)-2 ⇒ 3-2 ⇒ 1

Type (b): No-overlapping

No. of person between two different person = Total no. of person -(position of person from left + position of person from right)

Example: Mohan is sitting 15th from the left end and Sohan is sitting 20th from the right end of the row. If there are 54 students in a row, find the no. of person sitting between Mohan and Sohan.
Solution: Sum of position of Mohan & Sohan from opposite ends= 15+20=35, i.e. less than the total number of students (<54) Therefore, No. of students between Mohan & Sohan= Total no. of students -(position of Mohan from left + position of Sohan from right) ⇒ 54-(15+20) ⇒ 19

NOTE: If the positions of different persons are given from the same side (either left or right) in the above case, then it is always a case of 'cannot be determined' or 'data inadequate'.

Note : When total is not given and 2 persons positions from left and right are given, then answer is Cannot be determined

Example-1:
There are 12 persons in a row. The position of Vipul is 7th from left. What is his position from the right end?
Solution
→Total number of people = 12
→Position of Vipul from the left end = 7th
→Position of Vipul from the right end = Total number of people in a row + 1 – position of Vipul from
→the left end = 12 +1 – 7 = 6
→Therefore, Vipul is 6th from the right end

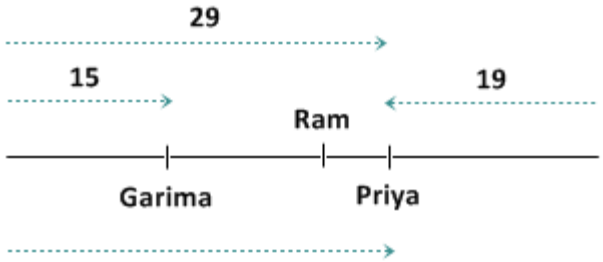
Example-2:
In a row, the position of Rahul is 10th from left in a row. Kajol is 17th from the right. Prem is ahead of Rahul by four positions and between Prem and Kajol, there are 6 persons between them. What is the total number of persons in the row?
Solution
→Position of Rahul = 10th from left
→Position of Kajol = 17th from right
→Position of Prem from Rahul = 4
→Persons between Prem and Kajol =6
→Total number of people in a row = 10+17+4+6 = 37

Example-3:
The position of Farhaan is 15th from left in a row. Sushant is 20th from the right end. There are 6 persons in between them. What is the total number of persons in the row?
Solution
→Position of Farhaan = 15th from the left end
→Position of Sushant = 20th from right end
→Persons in between them = 6
→Total number of people in the row = 15 + 20 + 6 = 41

Example 4:
James is 14th from left and Nancy is 25th from the right. They interchange their positions. Now James is 39th from left and Nancy is 50th from the right. What is the total number of persons in the row?
Solution
→As we have discussed earlier, to determine the total number of people, we need the L.H.S and R.H.S value of the same person.
→If we consider position-1, we observe that James is 14th from left and Nancy is 50th from the right.
→Nancy is 50th from right after interchanging their positions. This implies that the initial position of
→James from the right end was 50th.
→A total number of persons in a row = Position of James from left + Position of James from right – 1. 14 + 50 – 1 = 63
→The Same result is obtained if we look at the position-2.
→Nancy was 25th from right and now at the same position, James is 39th from left. So, we simply add up both the rankings i.e., from left and right and reduce by 1. 25 + 39 – 1 = 63
→Therefore, the total number of people in the row = 63.

Example 5:
In a class of 39 students, the ratio of boys and girls is 2:1. Akruthi ranks 15th among all the students from top and 8th among girls from the bottom. How many boys are there below Akruthi?
Solution
There are 26 boys and 13 girls
→ Among 13 girls, 7 girls are above Akruthi.
So, the remaining girls should be below her i.e., (13 – 8) = 5 girls are below her.
→ Since there are only 7 girls above Akruthi, the remaining 7 places are occupied by boys. So, the remaining boys will be below Akruthi.
→ Below Akruthi, there are 39-15 = 24 students. Among those 24 students, the number of boys below Akruthi is 24 – 7 = 17

Example 6;
In a row where all are facing north, Priya is 15th from the left end and Garima is 19th from the right end. They interchange their positions, and Ram who sits 24th from the left end sits at the 5th place to the left of Priya's new position. How many persons were there in the row?
Solution :
Using the given information we can create a following figure:



Here the total number of persons in the queue = (*29 + 19 - 1)
=47

Note: 29 is derived by adding Ram's position from left end of the row (24) and his position with respect to Priya (5).

Example 7:
During a prize distribution ceremony, Vikram was ninth from the left while Janhvi was eighth from the right in the front row. If Hariom was thirteenth from the left and was exactly in the middle of Vikram and Janhvi in the same row then what was the total number of people in the front row?
Solution:
Here, we know that Vikram was ninth from the left while Hariom was thirteenth from the left. So, we can say that there were 3 persons between Vikram and Hariom.
And, we also know that Hariom was exactly in the middle of Vikram and Janhvi so the number of persons between Hariom and Janhvi will also be 3.
At this point, using the given information we can create a following figure:

Now, total number of people in the queue = (8 + Vikram + 3 + Hariom + 3 + Janhvi + 7)
= (8 + 1 + 3 + 1 + 3 + 1 + 7) = 24
Thus, the total number of people in the queue was 24.

Example 8:In a group of 6 students P, Q, R, S, T and U each one having different height. P is taller than T but not as tall as U. Q and U are not the tallest and also R is the shortest. Who is the tallest among them
Explanation : S > (Q,U) > P > T > R