

Study Notes

Order and Ranking



Order and Ranking is an important chapter of the Reasoning Section for BBA Examinations. In this article, we will discuss **important concepts of Order and Ranking questions** with the help of formulae, tips, and the latest pattern questions.

Important Tip for Order and Ranking: Consider your Left Hand as the Left side and your Right Hand as the Right side.

In this topic, the data related to ranks of a person/persons from the left side/right side/top/bottom are given and the total number of persons are asked. In some questions, the total number of persons is given and the rank of the person from the left side/right side/top/bottom is asked. So **different types of questions can be formed** based on the rank/position of the persons in a row. Generally, six types of questions are formed from this topic which is mentioned as follows -

1. Total number of persons based on the given data
2. The rank of a person from the left or right side
3. Number of persons in between two persons
4. Minimum/Maximum number of persons in a row.
5. A number of persons on either side of a particular person.
6. The rank of a person after interchanging the position
7. Ascending/Descending Order of persons according to their categories (age, height, ranking, marks, etc)

Concepts of Order and Ranking Topic

Now let's understand important concepts & formulae of the topic one by one -

Case 1

To find the total number of persons, when ranks of one person are given from both sides of the row.

- **Total number of persons = $R1 + R2 - 1$**

R1 and R2 are ranks of a person (common person) from both (left and right) sides.

Example: In a row of persons, the Position of Ajay is 30th from the left side of the row, and the position from the right side of the row is 34th. Find the total number of persons in the row.

Solution: Total no. of person = (Position of Ajay from left + Position of Ajay from right) – 1



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$$\text{Total no. of person} = (30 + 34) - 1 = 64 - 1 = 63$$

To find the position of a person from the opposite side, when rank from one side and total no. of persons are given.

Position of a person from opposite side = (Total no. of persons – Position of the same person from the given side) +1

Example: In a row of 42 persons, the Position of Ramesh from the right side of the row is 22nd. What is the position of Ramesh from the left side of the row?

Solution: Position of Ramesh from left = (Total number of persons - Position of Ramesh from the right side) + 1 = $(42 - 22) + 1 = 21$

Case 2

To find the total number of persons in a row, when ranks of two persons and number of the persons who are sitting between these two persons are given.

There are two cases possible under this type which are as follows -

1) Not the overlapping case: When total number of students > (left position of one person + right position of another person)

Total number of persons = (Sum of positions of two different persons from both sides) + number of persons between two persons OR

Number of persons between two persons = Total number of persons - (Sum of positions of two different persons from both sides)

Example: In a row of 62 persons. Riya is 24th from the left side of the row and Raman is 20th from the right side of the row. Find out the number of persons sitting between them?

Solution: No. of Persons between Riya and Raman = $62 - (24 + 20) = 62 - 44 = 18$

2) Overlapping case: When (left position of one person + right position of another person) > Total number of students



Total number of persons = (R1+R2) - (number of persons between two persons+2) OR

Number of Persons between two different persons = (Sum of positions of two different persons from both sides) - Total no. of Persons - 2

Example: In a row of 62 persons. Riya is 36th from the left side of the row and Raman is 29th from the right side of the row. Find out the number of persons sitting between them?

Solution: No. of Persons between Riya and Raman = $(36+29)-62-2 = 65-62-2 = 1$

Case 3

To find the number of persons after or before a person whose rank is given -

Number of persons after or before the given person in a row = Total no. of persons - Position of the same person from another side

Example: In a row of 20 persons, the position of Ritu from the left side of the row is 6th. Find the no. of persons after Ritu in the row?

Solution: Number of persons after Ritu = Total no. of persons - Position of A from left

\Rightarrow No. of persons after A in the row = $20 - 6 = 14$

Case 4

When in a row, the positions of two persons are given and their positions are interchanged and after interchanging the position of 1st person is given from the same side as before interchanging.

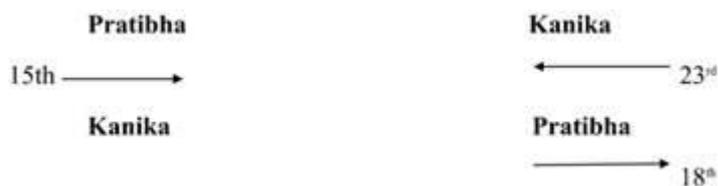
New Position of the 2nd person from the same side as before interchanging = Position of 2nd person from the same side before interchanging + (Position of the 1st person after interchanging - position of the 1st person before interchanging from the same side

Total Number of persons = Sum of the positions of a person (same person) from both sides - 1



Number of persons between two persons = Difference in the positions of a person(same person) whose position from the same side before and after interchanging is given - 1

Example: In a row of girls, Pratibha is 15th from the left, and Kanika is 23rd from the right. If they interchange their positions, then Pratibha becomes 18th from the left. Then at what position will Kanika be from the right?



$$\begin{aligned} \text{Total no of girls in a row} &= \text{Left End} + \text{Right End} - 1 \\ &= 18 + 23 - 1 = 40 \end{aligned}$$

$$\begin{aligned} \text{Kanika's position from right end} &= \text{Total girls} - \text{Left end} + 1 \\ &= 40 - 15 + 1 = 26 \end{aligned}$$

Example 2: Rahul and Nitesh are standing in a row of persons. Rahul is 12th from the left side and Nitesh is 18th from the right side of the row. If they interchanged their positions Rahul becomes 25th from left. Find these-

- New position of Nitesh from the right side
- Total number of persons
- Number of persons between them

Solution: A) Rahul Position changes from 12th to 25th from the left end. So there is an increase of 13 ranks. Since Rahul and Nitesh both are interchanged their positions so there must be some increase in ranks. So new position of Nitesh from right side = $18 + 13 = 31$

B) In this question, Rahul's position changes from 12 to 25 from left. That means 24 persons are standing from his left side. Now Rahul is at Nitesh's position which is 18th from the right side. That means 17 persons are standing from his right. Add all these left and right = $24 + 17 + 1$ (Rahul's own) = 42 total persons

C) Number of persons between Rahul & Nitesh = (Position of Rahul from left after interchanging - Position of Rahul from left before interchanging) - 1 \Rightarrow No. of persons between Rahul & Nitesh = $(25 - 12) - 1 = 13 - 1 = 12$

Case 5



If the total no. of persons is asked and the positions of two different persons from different sides are given then it is always a case of ‘cannot be determined’. Because we do not know if there will be overlapping or not.

Example: In a row, the Position of Raman from the left side of the row is 22nd, and the position of Ramesh from the right side of the row is 35th. Find the total no. of students in the row?

Solution: Cannot be determined

Case 6

If the positions of two different persons are given from opposite sides of the row and a third person is sitting exactly in the middle of the two. If the total number of persons is to be calculated, then there are two conditions -

1. When the position of the third person is given from either side of the row.
2. When the position of the third person is given with respect to either of the two persons between whom he/she is sitting.

Example: In a row of persons, the position of Riya from the left side of the row is 10th, and the position of Ranjan from the right side of the row is 9th. If Mahesh is sitting just in the middle of Riya and Ranjan and position of Mahesh from the left of the row is 16th. Find the total number of persons in the row?

Sol: The position of Mahesh from left is 16th and Riya from left is 10th so there are $(16-10-1=5)$ persons are sitting between Riya and Ranjan. As Mahesh is sitting exactly middle between them so 5 persons sitting between Mahesh and Ranjan.

Position of Mahesh from right = Position of Ranjan from right $9 + 5 + 1 = 9 + 6 = 15^{\text{th}}$

Total number of persons = Sum of Gaurav's positions from both sides - 1
 $1 = (16 + 15) - 1 = 31 - 1 = 30$

Latest Pattern Questions

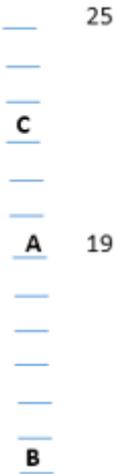
1. Three persons Atul, Binni, and Chatur are standing in a queue. There are eight persons between Binni and Chatur and five persons between Atul and Binni. There are 19 persons behind Atul and three persons ahead of Chatur. The minimum number of persons in the queue could be?

There are only 3 persons ahead of Chatur and there are eight persons between Binni and Chatur, which gives the only possibility as given below:





There are 5 persons between Atul and Binni. So, either Atul can be above Binni or below him. For minimum persons, Atul will be above Binni.



Solution: 25

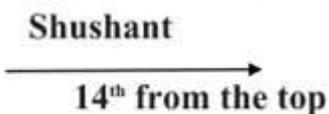
2. In a class of 90, where girls are twice that of boys, Shushant ranked fourteenth from the top, if there are 10 girls ahead of Shushant, how many boys are after him in rank?

$$\text{Girls} = 2 \text{ Boys}$$

$$\text{Girls} + \text{Boys} = 90$$

$$2 \text{ Boys} + \text{Boys} = 90$$

$$3 \text{ Boys} = 90 \text{ Boys} = 30 \text{ and Girls} = 60$$



There are 13 students ahead of him in which 10 are girls so no. of boys ahead of Shushant = $13 - 10 = 3$

$$\text{No of boys rank after him} = 30 - 3 - 1(\text{Shushant Himself})$$

$$= 30 - 4 = 26$$

3. Fifteen girls are standing in a straight line facing North. Sudha is standing eleventh from the right end. Radha is standing ninth from the left end. Meena



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is standing exactly between Sudha and Radha. How many girls are standing on the right of Meena?

Solution: Sudha is standing eleventh from the right end

-, -, -, -, Sudha, -, -, -, -, -, -, -, -

Radha is standing ninth from the left end

-, -, -, -, Sudha, -, -, -, Radha, -, -, -, -, -

Meena is standing exactly between Sudha and Radha.

-, -, -, -, Sudha, -, Meena, -, Radha, -, -, -, -, -

Hence there are 8 girls into the right of Meena.

4. If Usha is taller than Nisha; Nisha is taller than Asha; Alka is taller than Usha. Harsha is shorter than Asha; then who among them is the tallest?

Usha > Nisha

Nisha > Asha

Alka > Usha

Asha > Harsha

=> Alka > Usha > Nisha > Asha > Harsha

So, Alka is the tallest amongst them.



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