Ordering and ranking

Introduction to ordering and ranking

In Ordering and Ranking questions, the rank or position of a person from right/left, top or bottom of a class, or a row is determined. Also, a position or rank of the total number of people is to be calculated. Also, you may be asked to calculate the floor on which a person lives from the data given.

Points to remember while solving problems

1.The total number of a person/objects in a group or class is equal to one less than the sum of the positions of the same person from both the ends (either right and left or top and bottom). Since the same person is counted twice in the sum, the final answer is one less than the total sum.
Total number of objects/persons = [(sum of positions of the same person/object from both sides) – 1]

Example: In a row of persons, the position of Saket from the left side of the row is 27th, and the position of Saket from the right side of the row is 34th. Find the total number of students in the row? **(IBPS PO 2019)**

a) 60
b) 61
c) 62
d) 59

Answer: a) 60
Solution: Total number of students
= (Position of Saket from left + Position of Saket from right) -1
Total number of students = (27 + 34) – 1 = 61 – 1 = 60.
Hence the correct answer is option A.

2. The total number of persons/objects in a group is the sum of before or after the given person in a row and the position of the same person from the other side.
Total no. of persons/objects = No. of persons/objects before or after the given person in a row + Position of the same person from the other side.

Example: In a row of persons, the position of Aparna Nair from the left side of the row is 27th and there are 5 persons after her in the row. Find the total no. of persons in the row?
Solution: No. of persons in the row = Position of Aparna from left + No. of persons after Aparna
⇒ Total no. of persons = 27 + 5 = 32

3. If the positions of two objects/persons are given from the opposite ends and also the total number of persons/objects, then the problem can be addressed in two different ways to determine the number of persons between these two persons/objects.

Case 1: Overlapping

The total number of objects or persons in a group is always lesser than the addition of the position of two objects or persons from ends.

Example: The number of objects between two different persons = Total number of books – (Sum of positions of two different persons from opposite sides)
There are 24 students in the dance class, and the teacher is planning for an arrangement of students on stage. Samantha is 9th from the left side of the row and Supreetha is 22nd from the right side of the row. Find the number of dancers standing between the sisters Sampratha and Supreetha? **(Asked in bank exams)**

a) 4
b) 5
c) 6
d) 7

Answer:b) 5
Solution:Adding the position of Sampratha and Supreetha we get:
= 9 + 22 = 31
The result '31' is greater than the total number of students in a dance class.
Therefore the number of dancers standing between the sisters will be = [(Position of Sampratha from left + Position of Supreetha from right) – Total number of dancers – 2]
The number of dancers between Sampratha and Supreetha
= (9+22) – 24 – 2 = 31 – 24 – 2 = 5.
Hence the correct answer is option B.

Case 2: Non-Overlapping

The total number of objects or persons in a group is always greater than the addition of the position of two objects or persons from ends.

Example: There are 64 history books arranged in a row at central library Bangalore. Ancient history is 25th from the left side of the row and Medieval history is 30th from the right side of the row. What is the total number of books between Ancient and Medieval history?

a) 6
b) 7
c) 8
d) 9

Answer: d) 9
Solution: Adding the position of ancient and medieval history books, we get:
Ancient history Medieval history = 25 + 30 = 55
Hence the number '55' should be less than the total number of books.
∴ The number of books between ancient and medieval history = Total number of books – (Place value of Ancient history book from left + Place value of Medieval history from right)
The number of books between ancient and medieval history = 64 – (25+30) = 64 – 55 = 9
Hence the correct is option D.

4. If the data in the question provides only information of position of different objects or persons then it is impossible to find the total number of objects or people in a group or class. As the cases can either be overlapping or non-overlapping. In such a situation, the final answer will always be found. Save time by not trying to solve these types of questions.

Example: Deepavali or Diwali a festival lights in India. One can find the row of lamps in every house these days. Chaitra lights a row of the lamp in her home. A square-shaped lamp is at 18th from left, and a circular-shaped lamp is at 25th position in a row from right. Find the total number of lamps Chaitra had lit?**(Infosys 2019)**

a) 27
b) 30
c) 43
d) Can't be determined

Answer: d) Can't be determined
Solution: The scenario can be either be of Overlapping or non-overlapping one.
Hence the correct answer is option D.

5. Swapping of position to find the order/ ranking

In this section, the placement or the position of the two objects/persons are interchanged. The position of the two people or objects is examined before and after the interchanged.

The place value or the position of the second person from the same side as before interchanging

= Position of 2nd person from the same side before interchanging + (Position of 1st person after interchanging – position of 1st person before interchanging from the same side)

Example: Soldiers Punita and Mitali and are standing in a row of female soldiers. Punita is 18th from the left side of the row, and Mitali is 24th from the right side of the row. If they interchange their positions, Punita becomes 31st from left. Find:

1. The new position of Mitali from the right side
2. The total number of female soldiers in a row
3. Number of soldier between Punita and Mitali

Solution 1: The new position of Mithali from right side = Position of Mithali from the right side before interchanging + (Position of Punita from the left side after interchanging – Position of Punita from the left side before interchanging)

New position of Mithali from right side = 24 + (31 – 18) = 24 + 13 = 37

The new position of Mithali is 37th.

Solution 2: Total no. of persons = (B's position from right after interchanging + A's the position from left before interchanging) – 1

The Total number of female soldiers = (Mithali's position from right before interchanging + Punita's position from left before interchanging) – 1

= 37+18 -1 = 54.

Solution 3: To find the total number of people between any two persons.

No. of persons between A & B = (Position of A from left after interchanging– Position of A from left before interchanging) – 1

The total numbers of soldiers between Punita & Mithali = (Position of Punita from left after interchanging– Position of Punita from left before interchanging) – 1

= (31 – 18) – 1 = 13 – 1 = 12

6. If the positions of two objects from opposite sides of the row are known there is a third object right in the middle of the two, then the total number of objects can be evaluated based on the position of the third object.

Example: There is a pride of lions and their cubs in a row, the position of eldest lioness from the left side of the row is 9th & position of youngest lioness from the right side of the row is 8th. If the newborn cub is sitting just in the middle of eldest & youngest and position of cub from the left side of the row is 15th. Find the total number of lions in the row ? **(Asked in Google)**
Solution: The position of a cub from left is 15th, and the eldest lioness from left is 9th so there are 15 – 9 – 1 = 5 lions are sitting between eldest and youngest lioness. As the cub is sitting in the middle of the eldest and youngest lioness so there must also be 5 persons sitting between the youngest lioness and a cub.

Thus the position of a cub from right =
Position of youngest from right + 5 + 1 == 8 + 6 = 14
Total number of lions = (Sum of positions of cubs from both sides – 1)
= (15 + 14) – 1 = 29 – 1 = 28