Puzzle – 44

Q- Find the Heavy Ball Puzzle

There are 2187 balls, and out of them, 1 is heavy. Find the minimum number of attempts the balls have to be weighed to find the heavy ball.

My Approach and Solution –

Step 1. Divide the group of 2187 into 3 groups of 729.Take two arbitrary groups and weigh them. Either they will be imbalanced (in which case you've identified the group with the heaviest ball), or they are equal, in which case you know the 3rd group has the heaviest ball.

Step 2. Divide the group of 729 into 3 groups of 243.Take two arbitrary groups and weigh them. Either they will be imbalanced or they are equal, in which case you know the 3rd group has the heaviest ball.

Step 3. Divide the group of 243 into 3 groups of 81. Take two arbitrary groups and weigh them. Either they will be imbalanced, or they are equal, in which case you know the 3rd group has the heaviest ball.

Step 4. Divide the group of 81 into 3 groups of 27. Take two arbitrary groups and weigh them. Either they will be imbalanced, or they are equal, in which case you know the 3rd group has the heaviest ball.

Step 5. Divide the group of 27 into 3 groups of 9. Take two arbitrary groups and weigh them. Either they will be imbalanced, or they are equal, in which case you know the 3rd group has the heaviest ball.

Step 6. Divide the group of 9 into 3 groups of 3. Take two arbitrary groups and weigh them. Either they will be imbalanced, or they are equal, in which case you know the 3rd group has the heaviest ball.

Step 7. Divide the group of 3 into 3 groups of 1. Take two arbitrary groups and weigh them. Either they will be imbalanced, or they are equal, in which case you know the 3rd group has the heaviest ball. **= Total 7 Steps**