PUZZLE RACE QUESTIONS (SENIOR)
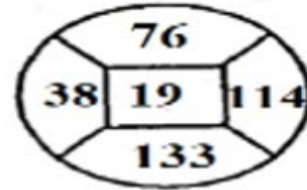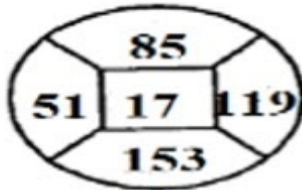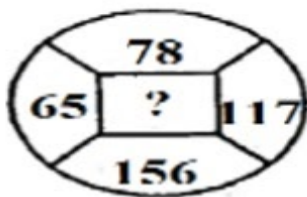
Questions

1. Replace the question mark with a suitable number. NOTE: Write your answer in the text box below.

78	85	76
65 ? 117	51 17 119	38 19 114
156	153	133

2. Write the names of all the animals.
Hint: There are 8 animals in this picture.
No partial marks will be awarded if your answer is partial.

3. What is the relationship between A and B? NOTE: No explanation is required , just write the correct relationship in one word or a line.

$$A \quad \frac{1}{10\sqrt{10}} \quad and \quad B \quad \frac{\sqrt{10}}{\sqrt{10^4}}$$

4. A pet lizard doubled in length each year until it reached its maximum length over the course of 20 years. How many years did it take for the lizard to reach half its maximum length?

5. A positive number that, once additional to 2000 offers a total that is larger than when increased by 2000.Find that positive number and write within the box below.

6. There are two ducks in front of a duck, two ducks behind a duck and a duck in the middle. How many ducks are there?

7. Have you ever wondered that it is possible to get one when two is added to eleven? Tell me when and how is it possible?
NOTE: This question can be answered in one word or a sentence. You can also write an explanatory answer.
You can also explain your answer. Full marks will be given for satisfactory answers.

8. FInd the minimum number of colours needed to paint the walls of different floors of a house such that no two adjacent floors are
of the same colour?

9. What is the percentage of all integers from 1 to 200 that contain at least one 4?

10. **Qualifier question**
Find the missing number
1 = 5
2 = 10
3 = 17
4 = ?
Replace the question mark with a suitable number.
This is a Qualifier question
Write your answer in the correct format.
If your answer is 12 . Write only 12 in the box below. Please do not write anything else, otherwise, It will lead to the wrong submission.

11. "Reema says to her brother Ram: "I have as many sisters as brothers."
"Yeah, well," replies Ram: "I've got twice as many sisters as I have brothers."
How many sisters and brothers are there?
NOTE:Clearly indicate the number of boys and the number of girls.

12. Find the angle (in degree) which is twice its complement.
NOTE: If your answer is 125 degrees, write only 125 in the text-box below.

13. There is a box containing 6 chocolates. And you are asked to empty the box but there's a condition that you can take either 1 chocolate or 2 chocolates at a time.Find the no. of ways you can empty the box.
HINT: Ways differ on the number of chocolates you eat each day.

14. This is Sudoku with a twist. Replace all the alphabets below so that every row, column, and the coloured box contains the numbers 1-5.Can you tell what A=?

A	1	B	G	H
I	K	M	N	2
C	3	D	O	P
E	F	J	R	4
L	Q	5	S	T

15. A concrete square adjusts uniformly in the scales with seventy five percent of a pound and 75% of a square. What is the heaviness(in pounds) of the entire square.

16. The average of three numbers is 40. All three are whole positive numbers and are different from each other.
If the lowest is 19, what could be the highest possible number of the remaining two numbers?

17. In a certain language,NAVPRAYAS is coded as 13 .How will you code CORONA in the same language?
 NOTE: Write the answer in correct format.See Instructions for HINT.
A ->1
N -> 14
P -> 16
R -> 18
S -> 19
V -> 22

18. Find me IF you can.
I am a positive integer less than or equal to 20. But my successor is greater than 20. Who am I ?

19. If [1 , 2 , 3] can be coded as [[1 , 2 , 3] , [1 , 3 , 2] , [2 , 1, 3] , [2 , 3 ,1] , [3 , 1 , 2] , [3 , 2 , 1]].
Find the sixth item in series formed by [1 , 2 , 3 , 4] ?
NOTE: If your answer is [4 , 3 , 2] write 432 in the text box.

20. This is a qualifier question.
In the decimal system we have digits from 0 to 9.
Decimal Number system 0,1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,......
Suppose 4 is not discovered , then find the 36th number in that number system?
NOTE: Write the number in the correct format , for example if your answer is 23 then write 23 in text box.
Please avoid writing unnecessary thing . Otherwise , it will lead to a wrong submission.

21. I have 3 white balls and 2 black balls. Arrange them in a line so that no two of the same colour
are together. In how many possible ways can this be done.
Consider balls as distinct even if they are of the
same colour.
NOTE:W1 B1 W2 B2 W3 is a valid combination.
W1 B1 W2 W3 B2 is not a valid combination because W2 and W3 are together.

22. A palindrome is a word which remains the same when reversed i.e. it is same when read from backwards.
Example : RACECAR , RADAR, MOM, etc.
How many distinct palindromes can you make of any length (greater than 0) using at most 2 A, 2 B, 1 C ?

23. There are 4 people standing at the bank of a river. All of them want to cross the river using a boat. The time taken by each of them to cross the river (in minutes) is given below.

A - 10 minutes.

B - 5 minutes.

C - 2 minutes.

D - 1 minutes.

Find the minimum time in which all of them will cross the river subject to the following conditions.

Condition 1: Only 2 people can sit on the boat at a time.

Condition 2: The time taken by boat to cross the river will be the maximum of time taken by both

seated persons (if there are 2 persons on the boat) .

For example , if A and C are on the boat, the boat will take 10 minutes to cross the river .

because 10 > 2,so 10 minutes to cross the river. Similarly, if B and D are on the boat , it will

take 5 minutes because 5 > 1.

NOTE: - Please consider all time taken .

24. There are 9 buckets of different sizes whose capacities are 4, 1, 4, 8, 2, 5, 4, 3, 7 .

You have to take the maximum amount of water from these buckets.

And there are some restrictions that you can't take water from two adjacent buckets.

Determine the maximum amount of water that you can take.

25. Below is a partial Magic Square using the numbers 1–16. The rows, columns, and diagonals must each total the same sum. Place the final four numbers in A, B, C, D.

 NOTE: Write answer in this format A=2 B=3 C=3 D=4

16	6	11	1
9	A	B	8
2	C	D	15
7	13	4	10

26. Recently. I bought some Apples at Newmarket for Rs. 10. But they were so small
that I made the vendor throw in two extra guavas for the same price. As I began to
walk away the vendor mumbled that this transaction had made him lose Rs.5 a
dozen less the price we had settled. How many Apples did I get for my Rs 10?

27. There are three different agents. Agents Yellow, Red and Green .Each
have a green badge, a yellow badge and a red badge, but none of them has a
badge colour that matches their name. They met when called to a conference
at headquarters. The Agent with the Green badge said "I have a license to
kill!" to which Agent Red replied sarcastically: "What, time?" Write the colour of
each Agent's badge?
Clearly mention agent with their badge colour

28. Recently I met a woman I hadn't seen in a long time. In the course of
conversation
she said, 'Do you know something funny? If you reverse my own age, the
figures
represent my husband's age. He is of course senior to me and the difference
between our ages is one-eleventh of their sum. Can you find out the woman's
age as
well as her husband's age.
Answer format : Write woman's age first and a space and then write husband's
age.

29. Each of the digits from 1 to 9 is:
(i) Represented by a different letter in the figure below.
(ii) Positioned in the figure above so that each of P+Q+R, R+S+T, T+U+V, and V+W+X is
equal to 13

Which digit does T represent?

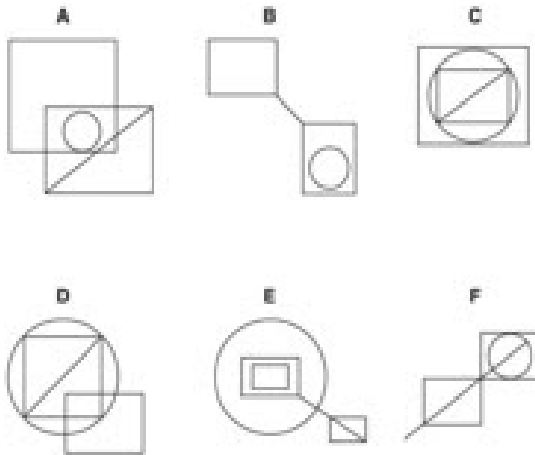| P	Q	R
S		
T	U	V
		W
		X

30. Which is the odd one out of these symbols?
This is a Qualifier question
Write your answer in the right format.
If your answer is Z . Write only Z in CAPI seTAL LETTER in the box below.
Please do not write anything else, otherwise, It will lead to the wrong submission.

31. A number with an interesting property:
When I divide it by 2, the remainder is 1.
When I divide it by 3, the remainder is 2.
When I divide it by 4, the remainder is 3.
When I divide it by 5, the remainder is 4.
When I divide it by 6, the remainder is 5.
When I divide it by 7, the remainder is 6.
When I divide it by 8, the remainder is 7.
When I divide it by 9, the remainder is 8.
When I divide it by 10, the remainder is 9.
It's not a small number, but it's not really big either. When I looked for a smaller number with this property I
couldn't find one. Find that number.

32. I have a number of roses for sale. The first buyer bought half of my roses then I gave him additional one for free.
The second buyer bought half of the remaining roses then I gave him additional one also for free. The third buyer

also bought half of the remaining roses then I gave him additional one also for free, this time all of my roses have
been sold out. How many roses did I have?

33. In a house, there are 15 bulbs that are initially off. You first turn on all the bulbs. Then, you turn off every second bulb. On the third round, you toggle every third bulb (turning on if it's off or turning off if it's on). For the i-th round, you toggle every i-th bulb. For the 12-th round, you only toggle the last bulb.Find how many bulbs are ON after 15 rounds.

34. In this puzzle, called a "squared square," squares of different sizes are contained within one big square. This puzzle has many versions. Some, involving rectangles and triangles, are equally as fun. The goal is to find out the sizes of the squares with the question marks. By comparing length of lines you already know, you can make some deductions to find out the sizes that are missing. Each number stands for the length of the sides in that square. Find A, B, C, D. NOTE: Write answer in this format A=2 B=3 C=3 D=4
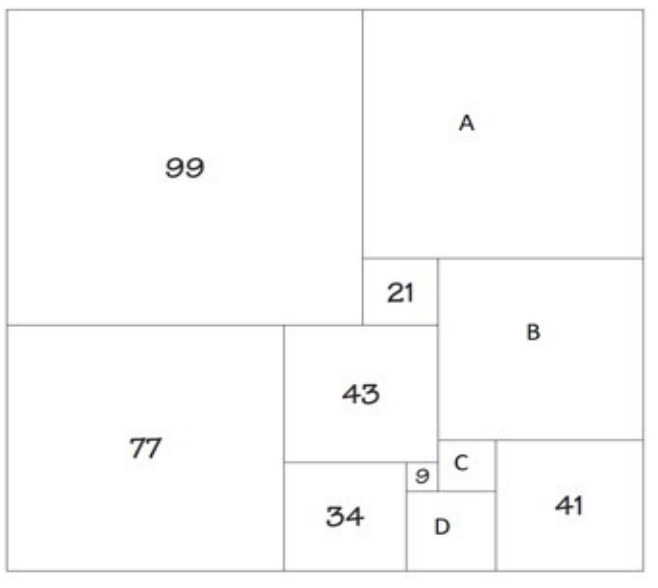
35. A fair maiden has been locked in a tall tower by an evil knight, but her golden hair is magical and she can grow it at her will—long enough for her champion to climb up and rescue her. When she casts her spell, her hair will grow by half its initial length in the first second, then by a third of its new length in the next second, then by a quarter of its length in the following second, and so on. Now, given that her hair is one meter long to start with and

the tower is fifty meters high, the question you have to ask yourself is when or if her hair will reach the ground.
You can write an explanatory answer but you need to mention everything asked precisely.

36. Work out what numbers each asterisk(*) represents. Only the numbers 0 to 9 are used, and no number is used twice (including the answer).
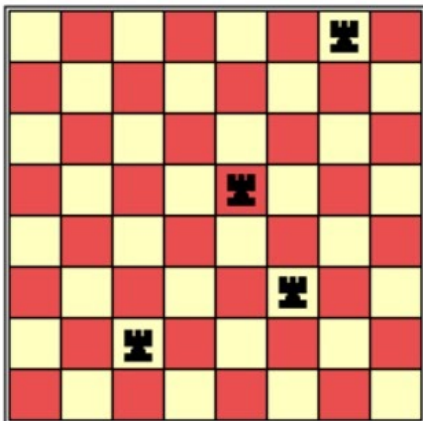Don't forget that zero! (*) × (**) + (*) + (*) = (*), then add 7 = 93. How ?

37. I entered a store and spent one-half of the money that was in my purse. When I came put I found that I had just as many paise as I had rupees and half as many rupees as I had paise when I went in.
How much money did I have on me when I entered?

38. How many squares, of any size, can you find on this chess board which do not contain a Rook?

39. Answer these questions as quickly as you can, and write down the answers.
A. Mr. and Mrs. Flynn have five sons. Each son has one sister. How many are there
in the Flynn family?
B. A street has 100 houses, numbered 1 to 100. How many houses have the number
9 in their address?
 C.Indiana Flynn acquired an ancient Egyptian mask for $400. He sold it for $600.

Later he bought it back for $800 and then sold it again for $1000. How much profit did he make?
 NOTE: Write your answer in a separate line.

40. NAVPRAYAS is planning to interview 6 people.
The different costs of flying to Bangalore are 259, 448, 926, 184, 840, 577 and that of to Mumbai are 770, 54, 667, 139, 118, 469.
Find the minimum total cost to fly every person to a city such that 3 people arrive in each city keeping the conditions given below in mind.
(i) If the i-th cost of flying to Bangalore is selected then you can't take the i-th cost of flying to Mumbai.
(ii) No tickets can be selected more than once.
(iii) Only one ticket can be selected for one person.
Example: If you select the 1st ticket for a person to go to Mumbai then you can't select the 1st ticket to go to Bangalore.
This is a Qualifier question
Write your answer in the right format.
If your answer is 12. Write only 12 in the box below. Please do not write anything else, otherwise, It will lead to the wrong submission.

41. Look at these digital hieroglyphs, reflect on them a little, and then work out what
the sixteen-digit number sequence is.

42. While visiting a city in Kolkata, I lost my Phone in a bus.
When I reported the matter to the bus company I was asked the number of the bus.
Though I did not remember the exact I did remember that the bus number had a certain peculiarity about it.
The number plate showed the bus number was a perfect square and also if the plate was turned upside down, the number would still be a perfect square?
 I came to know from the bus company they had only five hundred buses numbered from 500 to 1000 .
From this I was able to deduce the bus number.What was the number of that bus?

43. How many Quadrilaterals are there in the figure below.
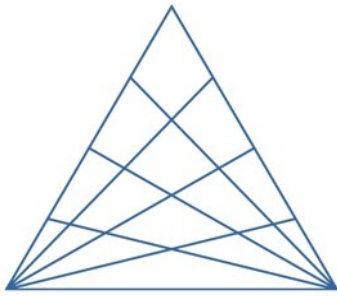
44. 50 people standing in a circle in an order 1 to 50

No.1 has a sword.
He kills the next person (i.e. no. 2) and gives a sword to next to next (i.e no.3).
All people do the same until only 1 survives.
Which number survives at the last?

45. In a X-Y plane, you are given 6 points. The points are (12,24), (4,10), (39,46),(90,120),(45,47), (23,32).
A point (x1 , y1) can follow another point (x2 , y2) if y1< x2.
Chain of points can be formed in this fashion.
Find the length of the longest chain which can be formed from the given set of pairs and also write those points.

46. Your friend gifted you a special but weird calculator as it has a number showing on its display and you can perform only to operations:
 i) DOUBLE: Multiply the number on the display by 2, or;
 ii) DECREMENT: Subtract 1 from the number on the display.
If initially, the calculator is displaying the number 15.
What is the minimum number of operations needed to display the number 36?

47. There are eight balls numbered as 2, 4, 5, 1, 3, -10, 7, 8. and
your task is to find the cost to arrange them in a circular arrangement in such a way that
the number labelled on the all is less than or equal to the sum of numbers labelled on the adjacent balls.
Also the cost of moving a ball from ith position to jth position is | i – j | .

48. "There are three plates A, B, C. And there are 5 chapatis (roti) in plate A each of different sizes and arranged in increasing order from the top i.e.

largest roti is at the bottom ans the smallest one is on the top. All you have to do is to move the all the rotis from plate A to plate B with the help of plate C, obeying the following rules:

(i) Only one roti can be moved at a time.

(ii) Each move consists of taking the upper roti from one of the plates and placing it in another plate i.e. a roti can only be moved if it is the uppermost roti of the plate.

(iii) No roti can be placed on top of a smaller roti.

What is the minimum number of moves you have to do to complete the task?

49. A cricket club with either 15 members from the A1 team, or 14 members from the A2 team, or 13 members from the A3 team, or 12 members from the A4 team can be formed in a Competition.

What is the minimum number of members we must randomly choose from Competition to ensure a Cricket club is formed?

50. There are 51 students in a class. The class needs to be divided into n sections such that each student is in exactly one section. Each student hates exactly three other students. (If student A hates student B, then student B does 'not' necessarily hate student A.) Find the smallest n such that it is possible to arrange the sections so that no student ates another student in his or her section.

This is a Qualifier question

Write your answer in the right format.

If your answer is 1000. Write only 1000 in the box below. Please do not write anything else, otherwise, It will lead to the wrong submission.

51. Below is a target that indicates the scores the arrows can make.

Six of the scores below are possible total scores if you shoot four arrows. Two scores are not. Two scores are impossible.

Scores: 24, 22, 34, 32, 30, 21, 33, 26.Find the sum of that impossible scores.
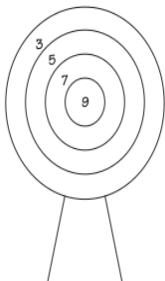
52. Rohini's birthday falls on one of the following 10 dates:May 15, May 16, May 19, June 17, June 18, July 14, July 16, August 14, August 15 or August 17.

Rohini tells Raju her 'birth month' and Shivam her 'birth date' separately without letting each other know.

Then following conversation takes place:

Raju: I don't know when Rohini's birthday is, but I know that Shivam doesn't know too.

Shivam: At first I didn't know when Rohini's birthday was, but I know now.

Raju: Then I also know when Rohini's birthday is.

So when is Rohini's birthday?

53. A teacher says to two of his students, "I'm thinking of two natural numbers greater than 1. Try to guess what they are.

He whispers the product to one student, then whispers the sum to the other without letting them know.

The first student (who knows the product) says, "I do not know the sum."

The second student says, "I knew that. The sum is less than 14."

"I knew that," says the first student. "However, now I know the numbers."

After a split second, the second student nods and says, "And now so do I".

What are the numbers?

Answers :-

1.13

2. Elephant, Dolphin, Sea horse, Horse/Unicorn, Cat, Rat/Mouse, Dog, Fish

3. They are equal

4. It took 19 years

5. 1

6. Three. Two ducks are in front of the last duck; the first duck has two ducks behind; one duck is between the other two

7. 11 o'clock + 2 hours = 1 o'clock

8. 2

9. 19

10. 26

11. 4 sisters and 3 brothers. Reema has 3 sisters and 3 brothers, and Ram has 2 brothers and 4 sisters.

12. 60

13. 13   Soln : Number of ways to empty the box [1,2,3,5,8,13]. Each entry denotes the number of ways you can empty the box on this day.

14. 5

15. The weight is 3lbs.

16. 81

17. 11

18. 20

19. "1432

[{ 1, 2 , 3, 4 } , { 1, 2 4, 3 } ,{ 1, 3 2, 4 } , { 1,3, 4,2 }, { 1, 4 ,2 ,3 } { 1, 4 ,3 ,2} , ... , {4,3, 2 ,1 }]"

20. 39

21. 12

W1

B1 B2

W2W3 W2W3

B2 B2 B1B1

W3W2 W3W2

Possible combinations: W1B1W2B2W3 ,

, W1B1W3B2W2

, W1B2W2B1W3

, W1B2W3B1W2

Similarly with W2 and W3.

Hence , (4 + 4 + 4) = 12.

22. Soln:13 (3 + 2 + 4 + 2 + 2)

Length 1 A, B , C,

Length 2 AA, BB,

Length 3 ABA, BCB, ACA, BAB,

Length 4 BAAB, ABBA

Length 5 ABCBA, BACAB.

23. 17 Soln : 17 minutes (2 + 1 + 10 + 2 + 2) = 17 minutes.
First C and D will go , which take 2 minutes, the C will stay there and D return adding 1 more minute. A and B will go now taking 10 minutes. Now , C who was earlier on the other side will take the boat back in 2 minutes and carry D with him adding 2 more minutes.

24. 25

25. A=12 , B=5 , C=3 , D = 14 OR A=3 , B=14 , C=12 , D = 5

26. 6 Apples

27. Yellow has Green badge, Red has Yellow badge and Green has Red badge.

28. Woman age-45,Husband-54

29. 4

30. E

31. 2519

32. 14

33. 3

34.BONUS

"A=78   B=57   C=16   D=25

35. The precise answer is 98 seconds. Her hair always grows at 50 cm a second, all the way.

36. 2 × 40 + 5 + 1 = 86, then add 7 = 93
       Or
    6 x 12 + 5 + 9 = 86 , then add 7 = 93

37. I must have entered the store with Rs. 99.98 in my purse.

38. There are 110 squares without a rook.
There are 60 squares of size 1×1. There are 35 squares of size 2×2. There are 12 squares of size 3×3. There are 3 squares of size 4×4. A total of 60 + 35 + 12 + 3 = 110.

39. A.Eight (five sons, one daughter, mother and father).   B.There are nineteen houses with 9 in their address.
C.Indiana made a total profit of $400

40. 1859

41. 99 33 44 66 77 88 66 44

42. By experiment we find that the only numbers that can be turned upside down and still read as a number are 0, 1, 6, 8 and 9.

The numbers 0, 1 and 8 remain 0, 1and 8 when turned over, but 6 becomes 9 and 9 becomes 6. Therefore, the possible numbers on the bus were 9,16, 81, 100, 169 or 196. However the number 196 is the only number which becomes a perfect square when turned over because 961 is the perfect square of 31.But the bus numbers are from 500 to 1000.
Therefore, 961 is the correct answer"

43. 36

44. Answer is 37
Round 1 : 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, 43, 45, 47, 49
Round 2: 1,5,9,13,17,21,25,29,33,37,41,45,49
Round 3: 5,13,21,29,37,45
Round 4: 5,21,37
Round 5: 5,37
Round 6: 37

45. 4 Points.
46. 8
47. Impossible
48. 15 moves
49. 51 members
50. 7
51. 54
52. July 16
53. 2 and 9