

- 1) A man collects cigarette stubs and makes one full cigarette with every 8 stubs.  
If he gets 64 stubs how many full cigarettes can he smoke.

Ans:  $8+1=9$

- 2) A soldier loses his way in a thick jungle. At random he walks from his camp but mathematically in an interesting fashion. First he walks one mile East then half mile to North. Then  $1/4$  mile to West, then  $1/8$  mile to South and so on making a loop. Finally how far he is from his camp and in which direction.

Ans: Distance travelled in north and south directions

$$1/2 - 1/8 + 1/32 - 1/128 + 1/512 - \text{and so on} \\ = 1/2 / ((1 - (-1/4)))$$

Similarly in east and west directions

$$1 - 1/4 + 1/16 - 1/64 + 1/256 - \text{and so on} \\ = 1 / ((1 - (-1/4)))$$

Add both the answers

- 3) How can 1000000000 be written as a product of two factors neither of them containing zeros

Ans:  $2^9 \times 5^9$

- 4) Conversation between two mathematicians:

**First :** I have three children. The product of their ages is 36.

If you sum their ages, it is exactly same as my neighbour's door number on my left.

The second mathematician verifies the door number and says that it is not sufficient.

Then the first says " Ok one more clue is that my youngest is really the youngest". Immediately the second mathematician answers .

Can you answer the question asked by the first mathematician?

What are the children's ages?

Ans 1,6 and 6

- 5) Light glows for every 13 seconds . How many times did it glow between 1:57:58 and 3:20:47 am.

Ans :  $383 + 1 = 384$

- 6) 500 men are arranged in an array of 10 rows and 50 columns according to their heights.

Tallest among each row of all are asked to fall out.

And the shortest among them is A.

Similarly after resuming that to their original positions that the shortest among each column are asked to fall out.

And the tallest among them is B .

Now who is taller among A and B ?

Ans A

7) A person with some money spends  $\frac{1}{3}$  for cloths,  $\frac{1}{5}$  of the remaining for food and  $\frac{1}{4}$  of the remaining for travel.

He is left with Rs 100/- .

How much did he have with him in the beginning ?

Ans: Rs 250/-

8) There are six boxes containing 5 , 7 , 14 , 16 , 18 , 29 balls of either red or blue in colour.

Some boxes contain only red balls and others contain only blue.

One sales man sold one box out of them and then he says

" I have the same number of red balls left out as that of blue " .

Which box is the one he sold out ?

Ans: Total no of balls = 89 and  $(89-29)/2 = 60/2 = 30$   
and also  $14 + 16 = 5 + 7 + 18 = 30$

9) A chain is broken into three pieces of equal lengths containing 3 links each.

It is taken to a blacksmith to join into a single continuous one .

How many links are to be opened to make it ?

Ans : 2.

10) Grass in lawn grows equally thick and in a uniform rate.

It takes 24 days for 70 cows and 60 days for 30 cows to eat the whole of the grass.

How many cows are needed to eat the grass in 96 days.?

Ans : 20

g - grass at the beginning

r - rate at which grass grows, per day

y - rate at which one cow eats grass, per day

n - no of cows to eat the grass in 96 days

$$g + 24*r = 70 * 24 * y$$

$$g + 60*r = 30 * 60 * y$$

$$g + 96*r = n * 96 * y$$

Solving,  $n = 20$ .

## Section B

1. Replace each letter by a digit.

Each letter must be represented by the same digit and no beginning letter of a word can be 0.

O N E

O N E

O N E

O N E

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T E N

Ans:  $O = 1, N = 8, E = 2, T = 7$

2. Ann, Boobie, Cathy and Dave are at their monthly business meeting.

Their occupations are author, biologist, chemist and doctor, but not necessarily in that order.

Dave just told the biologist that Cathy was on her way with doughnuts.

Ann is sitting across from the doctor and next to the chemist.

The doctor was thinking that Boobie was a goofy name for parent's to choose, but didn't say anything.

What is each person's occupation?

Ans: Since Dave spoke to the biologist and Ann sat next to the chemist and across the doctor, Cathy must be the author and Ann the biologist.

The doctor didn't speak, but David did, so Bobbie is the doctor and Dave the chemist.

3. Sometime after 10:00 PM a murder took place.

A witness claimed that the clock must have stopped at the time of the shooting.

It was later found that the position of both the hands were the same but their positions had interchanged.

Tell the time of the shooting (both actual and claimed).

Ans: Time of shooting = 11:54 PM

Claimed Time = 10:59 PM

4. Next number in the series is

1, 2, 4, 13, 31, 112, ?

Ans: 224.

No number has digits more than 4. All of them are 1, 2, 4, 8, 16, 32, 64 converted to numbers in base 5

5. Shahrukh speaks truth only in the morning and lies in the afternoon, whereas Salman speaks truth only in the afternoon. A says that B is Shahrukh. Is it morning or afternoon and who is A - Shahrukh or Salman.

Ans: Afternoon ; A is Salman.

6. Two trains starting at same time, one from Bangalore to Mysore and other in opposite direction arrive at their

destination 1 hr and 4 hours respectively after passing each other. How much faster is one train

from other?

Ans: Twice

7. There are 6 volumes of books on a rack kept in order ( ie vol.1, vol. 2 and so on ).  
Give the position after the following changes were noticed.

- λ All books have been changed
- λ Vol.5 was directly to the right of Vol.2
- λ Vol.4 has Vol.6 to its left and both weren' t at Vol.3' s place
- λ Vol.1 has Vol.3 on right and Vol.5 on left
- λ An even numbered volume is at Vol.5' s place

Find the order in which the books are kept now.

Ans: 2 , 5 , 1 , 3 , 6 , 4

8. I bought a car with a peculiar 5 digit numbered licence plate which on reversing could still be read.

On reversing value is increased by 78633.Whats the original number if all digits were different?

Ans: Only 0 1 6 8 and 9 can be read upside down. So on rearranging these digits we get the answer as 10968

9. The shape in the sketch below is that of a square attached to half of a similar square. Divide it into four equal pieces



Ans: Hint : the figure can be divided into 12 equal triangles

10. Supposing a clock takes 7 seconds to strike 7. How mlong will it take to strike 10?

Ans: 10 1/2 seconds.

