MAGIC NUMBER   ——Vijay Iyengar

Consider the number M=588235294117647.
Multiply it by any number from 1 to 15. There will be a zero in the answer. Starting from the number following the zero, the digits of M will be repeated.

e.g.   588235294117647 X 5 = 2941176470|588235.

   588235294117647 X 13= 76470|58823529411.

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A boy was staring intently at an empty sheet of canvas when an old gentleman passing by asked him, 'Son, what are you looking at?'
'I am looking at a picture of a cow eating grass.'
'Where's the grass' asked the old gentleman.
'It's been eaten by the cow', he replied.
'Where's the cow?', asked the confused octogenarian.
Pat came the reply, 'Obviously, it went away after the grass was over'.

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Once, when a woman in a bus was caught for ticket less travel, she insisted that the conductor hadn't given her a ticket. In his rage, the conductor gave the woman a hard shove. She fell out of the bus and was fatally run over.
Later, the conductor was sentenced to death on the electric chair. He seemed very cheerful and was even laughing when he went towards the chair. A reporter asked him why he was so self-sure. He replied, 'I'm a bad conductor'.

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Solution to last week's Brain Teaser

On the basis of the first clue, namely that the product of the ages is 36, a large number of combinations is feasible. The next clue lies in the fact that in spite of his having known the sum of the ages, the census taker was unable to arrive at the correct answer. This can only mean that there is more than one combination of ages which gives the same sum. All possible combinations are given below.

Ages			Product	sum
36,	1,	1	36	38
18,	2,	1	36	21
12,	3,	1	36	16
9,	4,	1	36	14
6,	6,	1	36	13
9,	2,	2	36	13
6,	3,	2	36	11
4,	3,	3	36	10

A simple process of trial and error shows that only two combinations, namely (9,2,2) and (6,6,1) can fulfil the given conditions. Since the eldest daughter was sleeping upstairs, it is obvious that their ages were 9, 2 and 2.

**

(1) Complete the Series:

   1, 0, 0, 3, 20, 115, 714, ---.

(2)   1 : 8 as ? : 64.
Alternatives: (a) 9 (b) 16 (c) 25 (d) 36 (e) 49

(3)   By removing and replacing just one matchstick in each of the following cases, make the equality hold.

e.g. $\frac{XXIV}{VII} = V$ SOLUTION $\frac{XXIV}{VI} = IV$

a) $\frac{XXIII}{VII} = II$

b) $II = VI$

c) $VIII = V-III$

-- Contributed by Bharat.

d) $\frac{XI}{II} = III$

SOLUTION ON PAGE 3.

PJ PAJE

A shocked mother heard her 5-year-old son chant, 'One and one the son-of-a-bitch is two; one and two, the son-of-a-bitch is three. She immediately took her son to his school and asked him to repeat what he had said. The teacher explained, 'All I taught them was, 1 and 1, the sum of which is 2; 1 and 2, the sum of which is 3.'

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Waste of time: Telling a hair-raising story to a bald man.

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Definition of squint: Eccentricity of the eyeball.

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What is the difference between a sailor and a baby?

One makes a bed at sea and the other makes a sea in bed.

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What is the difference between a teacher and a station-master?

One trains the mind while the other minds the train.

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What is the difference between a football and a prince?

One is heir to the throne, while the other is thrown to the air.

***

There was an acute water scarcity in a war camp. The scarcity was so bad that everyone was truly filthy. The General ordered that the water ration of the hospital staff be doubled, so that at least they could be a little clean.

At a party a few days later, a nurse was introduced to the General. At a loss for words, she gushed, 'General, thank you so much for the increase in our water rations. Every time I have a bath, when I take off my clothes, I think of you.'

***

In an overcrowded train a gentleman once jokingly offered a young lady a seat on his lap. He was quite zapped when she immediately did so. Seeing her tapping on his knee, he said, 'You're a typist, aren't you?', to which she replied, 'I know your occupation, too. You're a lift operator, aren't you?'

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HOWZAAT!
                                                    -- Chelluri.

India's ace leg-spinner, B. S. Chandrashekhar, was once very sore at a number of lbw decisions being turned down. Once, when the batsman was bowled, he appealed loudly.

The umpire said, 'He's bowled.'

Chandrashekhar replied, 'Yes, I know that, but is he out?'

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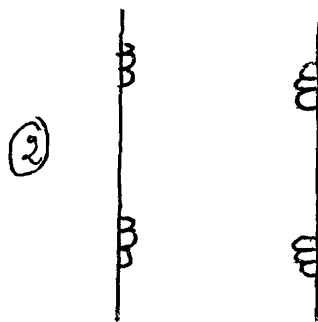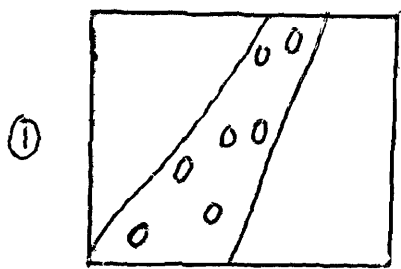Solution to Bharat's puzzle.

(1)   Answer: 5033.
        The rth term of the series is $[r! - r]$. Hence the first
        term is $[0! - 0] = 1$, and so on.

(2)   Answer: (a) 9.
        1^2 is to $(1 + 1)^3$ as 3^2 is to $(3 + 1)^3$.
        Also, $8 = 1 + (7 \times \underline{1})$. Hence, $64 = 1 + (7 \times \underline{9})$

(3)

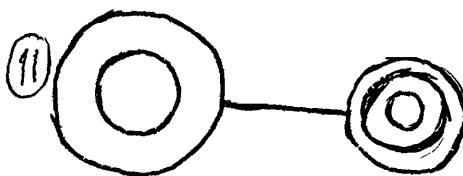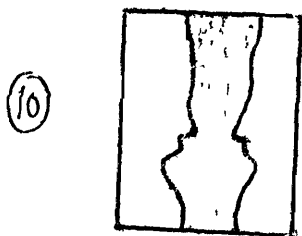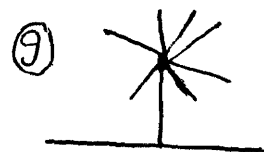a) $\dfrac{XX\,!!}{\forall\,!!} = TT$ b) $! = \forall T$

c) $\forall !!! - \forall = !!!$ d) $\dfrac{\forall\,!}{!!} = !!!$

Can you guess what these are?

① ② ③ O B A M A

④ ⑤ ⑥

⑦ ⑧ ⑨

⑩ ⑪ ⑫ **Bed**
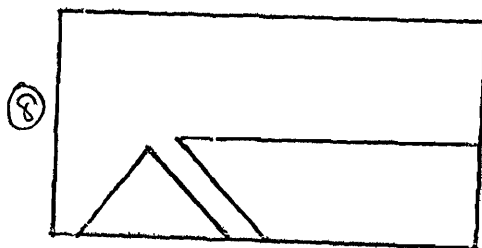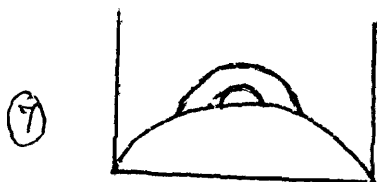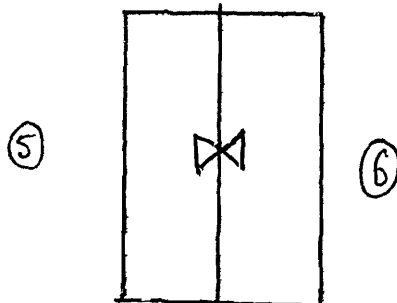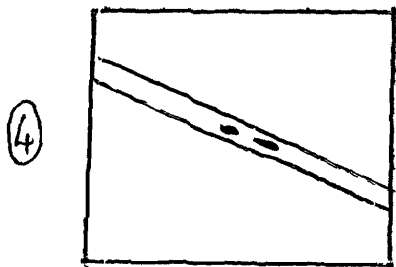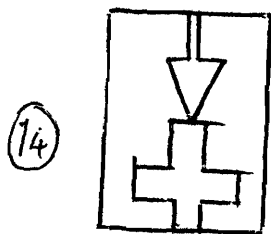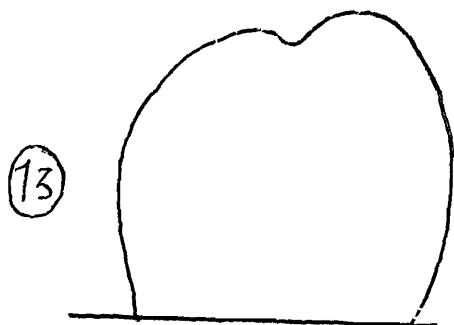
⑬ ⑭ ⑮

ANSWERS:

1) A giraffe seen thro' a window.
2) A bear climbing a tree.
3) 2 degrees below zero.
4) 2 corpuscles making love in vein.
5) Well dressed man entered lift in hurry
6) Fat man smoking cigar in bath-tub.
7) A tortoise climbing over a hillock.
8) A boat coming late to save a drowning witch
9) A spider doing a handstand
10) Two men discussing matter.
11) Mexican frying an egg
12) A darkie in bed
13) Fat woman bending over
14) Two men face to face.
15) Pig coming out of smog

Prize awarded to: A.P. GLADSTONE - Room No. 346
The prize will be given at 7:15 p.m. on Sunday, 1-3-'81
        in the mess.

Solution

        Number of tickets, n = 54.

        Consider one person.
The probability of his ticket being picked the first time =$(1 / n)$.
Probability that it is not picked = $(1 - 1/n)$.
Probability that it is not picked even the second time = $(1-1/n)(1-1/n)$.
Probability that it is not picked in all n   draws

$$= \left(1 - \frac{1}{n} \right)^n.$$

Probable number of persons getting consolation prize

$$= n \times \left(1 - \frac{1}{n} \right)^n$$

The director will probably give away

        Rs. $\left[na\left(1-\frac{1}{n}\right)^n \right]$ in the form of consolation prizes.

His expected profit is $p = 20a - na\left(1-\frac{1}{n}\right)^n$

        i.e. $p = 20a\left[1-\frac{n}{20}(1-1/n)^n\right]$

        At the critical value, the expression in the square brackets
becomes 0. $n\left(1 - \frac{1}{n}\right)^n = 20.$

        By trial, it is found that for n=54, p=0.32a; for n=55, p=-0.04a.
Thus the required value of n is 54 .
                        Y ******