Φ Zerone - Stands for **Zero (0)** and **One (1)**, the very basics of computing. So Binary Matters. Infact only Binary Matters in our world of computers. The motive behind Zerone is to make job hunting an easier process or atleast that is what we intent to. This is a one stop jobs group. The content in this document is collected from various groups, sites & media. Copyright belongs to respective owners. If you have any copyright issues, please mail to **legal@zeroneworld.com** with complete details.

"If You Have An Apple And I Have An Apple And We Exchange Apples Then You And I Will Still Each Have One Apple. But If You Have An Idea And I Have An Idea And We Exchange These Ideas, Then Each Of Us Will Have Two Ideas."
--- George Bernard Shaw (1856-1950)

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400 Infosys Puzzles:

1.Three friends divided some bullets equally. After all of them shot 4 bullets the total number of bullets remaining is equal to the bullets each had after division. Find the original number divided.
18

2.Find sum of digits of D.
Let A= 1999^{1999}
B = sum of digits of A, C = sum of digits of B, D = sum of digits of C. (HINT: A = B = C = D (mod 9))

3.There is a 50m long army platoon marching ahead. The last person in the platoon wants to give a letter to the first person leading the platoon. So while the platoon is marching he runs ahead, reaches the first person and hands over the letter to him and without stopping he runs and comes back to his original position.
In the mean time the whole platoon has moved ahead by 50m.
The question is how much distance did the last person cover in that time. Assuming that he ran the whole distance with uniform speed.

4.If you take a marker & start from a corner on a cube, what is the maximum number of edges you can trace across if you never trace across the same edge twice, never remove the marker from the cube, & never trace anywhere on the cube, except for the corners & edges? 9

5.One of Mr. Bajaj, his wife, their son and Mr. Bajaj's mother is an Engineer and another is a Doctor.
If the Doctor is a male, then the Engineer is a male.
If the Engineer is younger than the Doctor, then the Engineer and the Doctor are not blood relatives.
If the Engineer is a female, then she and the Doctor are blood relatives.
Can you tell who is the Doctor and the Engineer?
Doc is

6.Three men - Sam, Cam and Laurie - are married to Carrie, Billy and Tina, but not necessarily in the same order.
Sam's wife and Billy's Husband play Carrie and Tina's husband at bridge. No wife partners her husband and Cam does not play bridge.
Who is married to Cam?
Cam carrie

7.There are 3 persons X, Y and Z. On some day, X lent tractors to Y and Z as many as they had. After a month Y gave as many tractors to X and Z as many as they have. After a month Z did the same thing. At the end of this transaction each one of them had 24.
Find the tractors each originally had?

8.A certain street has 1000 buildings. A sign-maker is contracted to number the houses from 1 to 1000. How many zeroes will he need?

9.There are 9 coins. Out of which one is odd one i.e weight is less or more. How many iterations of weighing are required to find odd coin?

10.In a sports contest there were m medals awarded on n successive days (n > 1).
On the first day 1 medal and 1/7 of the remaining m - 1 medals were awarded.
On the second day 2 medals and 1/7 of the now remaining medals was awarded; and so on.
On the n^{th} and last day, the remaining n medals were awarded.
How many days did the contest last, and how many medals were awarded altogether?

11.A number of 9 digits has the following properties:
The number comprising the leftmost two digits is divisible by 2, that comprising the leftmost three digits is divisible by 3, the leftmost four by 4, the leftmost five by 5, and so on for the nine digits of the number i.e. the number formed from the first n digits is divisible by n, 2<=n<=9.
Each digit in the number is different i.e. no digits are repeated.
The digit 0 does not occur in the number i.e. it is comprised only of the digits 1-9 in some order.
Find the number.

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12. 1/3 rd of the contents of a container evaporated on the 1st day. 3/4th of the remaining contents of the container evaporated on the second day.
What part of the contents of the container is left at the end of the second day?
(x-1/3x)-((x-1/3x)3/4)=2/3x-1/2x= 1/6x

13.Vipul was studying for his examinations and the lights went off. It was around 1:00 AM. He lighted two uniform candles of equal length but one thicker than the other. The thick candle is supposed to last six hours and the thin one two hours less. When he finally went to sleep, the thick candle was twice as long as the thin one.
For how long did Vipul study in candle light? 3 hrs

14.If you started a business in which you earned Rs.1 on the first day, Rs.3 on the second day, Rs.5 on the third day, Rs.7 on the fourth day, & so on.
How much would you have earned with this business after 50 years (assuming there are exactly 365 days in every year)?
Math gurus may use series formula to solve it.(series: 1,3,5,7,9,11.....upto 18250 terms)

15.A worker earns a 5% raise. A year later, the worker receives a 2.5% cut in pay, & now his salary is Rs. 22702.68

What was his salary to begin with?

16.At 6'o a clock ticks 6 times. The time between first and last ticks is 30 seconds. How long does it tick at 12'o.

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17. 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 come out. And the shortest among them is A. Similarly after resuming them to their original positions, the shortest among each column are asked to come out. And the tallest among them is B.
Now who is taller A or B? a&b same person

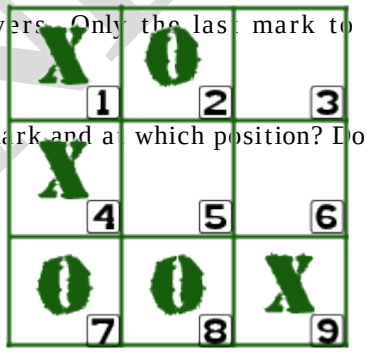
18.In Mr. Mehta's family, there are one grandfather, one grandmother, two fathers, two mothers, one father-in-law, one mother-in-law, four children, three grandchildren, one brother, two sisters, two sons, two daughters and one daughter-in-law. How many members are there in Mr. Mehta's family? Give minimal possible answer. 7

19.When Alexander the Great attacked the forces of Porus, an Indian soldier was captured by the Greeks. He had displayed such bravery in battle, however, that the enemy offered to let him choose how he wanted to be killed. They told him, "If you tell a lie, you will put to the sword, and if you tell the truth you will be hanged."
The soldier could make only one statement. He made that statement and went free. What did he say?

20.A person wanted to withdraw X rupees and Y paise from the bank. But cashier made a mistake and gave him Y rupees and X paise. Neither the person nor the cashier noticed that. After spending 20 paise, the person counts the money. And to his surprise, he has double the amount he wanted to withdraw.

Find X and Y. (1 Rupee = 100 Paise)

21.The game of Tic-Tac-Toe is being played between two players. Only the last mark to be placed in the game as shown.



Who will win the game, O or X? Can you tell which was the sixth mark and at which position? Do explain your answer.
Assume that both the players are intelligent enough.

22At the Party:
There were 9 men and children.
There were 2 more women than children.
The number of different man-woman couples possible was 24. Note that if there were 7 men and 5 women, then there would have been 35 man-woman couples possible.

Also, of the three groups - men, women and children - at the party:
There were 4 of one group.
There were 6 of one group.
There were 8 of one group.
Exactly one of the above 6 statements is false.

Can you tell which one is false? Also, how many men, women and children are there at the party

23There is a shortage of tube lights , bulbs and fans in a village - Kharghar. It is found that
All houses do not have either tubelight or bulb or fan.
exactly 19% of houses do not have just one of these.
atleast 67% of houses do not have tubelights.
atleast 83% of houses do not have bulbs.
atleast 73% of houses do not have fans.
What percentage of houses do not have tubelight, bulb and fan?

23.Mr. Subramaniam rents a private car for Andheri-Colaba-Andheri trip. It costs him Rs. 300 everyday.
One day the car driver informed Mr. Subramaniam that there were two students from Bandra who wished to go from Bandra to Colaba and back to Bandra. Bandra is halfway between Andheri and Colaba. Mr. Subramaniam asked the driver to let the students travel with him.

On the first day when they came, Mr. Subramaniam said, "If you tell me the mathematically correct price you should pay individually for your portion of the trip, I will let you travel for free."
How much should the individual student pay for their journey?

ANSWERS
1. 18
Assume that initial there were 3*X bullets.
So they got X bullets each after division.
All of them shot 4 bullets. So now they have (X - 4) bullets each.

But it is given that, after they shot 4 bullets each, total number of bullets remaining is equal to the bullets each had after division i.e. X
Therefore, the equation is
3 * (X - 4) = X
3 * X - 12 = X
2 * X = 12
X = 6
Therefore the total bullets before division is = 3 * X = 18

2. The sum of the digits of D is 1.

Let E = sum of digits of D.
It follows from the hint that A = E (mod 9)
consider,

$A = 1999^{1999}$
$< 2000^{2000}$
$= 2^{2000} * 1000^{2000}$
$= 1024^{200} * 10^{6000}$
$< 10^{800} * 10^{6000}$
$= 10^{6800}$
i.e. $A < 10^{6800}$
i.e. $B < 6800 * 9 = 61200$
i.e. $C < 5 * 9 = 45$
i.e. $D < 2 * 9 = 18$
i.e. $E <= 9$
i.e. E is a single digit number.
Also,
$1999 = 1 \pmod 9$
so $1999^{1999} = 1 \pmod 9$

Therefore we conclude that E=1.

3.The last person covered 120.71 meters.

It is given that the platoon and the last person moved with uniform speed. Also, they both moved for the identical amount of time. Hence, the ratio of the distance they covered - while person moving forward and backword - are equal.
Let's assume that when the last person reached the first person, the platoon moved X meters forward.
Thus, while moving forward the last person moved (50+X) meters whereas the platoon moved X meters.
Similarly, while moving back the last person moved [50-(50-X)] X meters whereas the platoon moved (50-X) meters.
Now, as the ratios are equal,
(50+X)/X = X/(50-X)
(50+X)*(50-X) = X*X

Solving, X=35.355 meters
Thus, total distance covered by the last person
= (50+X) + X
= 2*X + 50
= 2*(35.355) + 50
= 120.71 meters

Note that at first glance, one might think that the total distance covered by the last person is 100 meters, as he ran the total length of the platoon (50 meters) twice. TRUE, but that's the relative distance covered by the last person i.e. assuming that the platoon is stationary.

4. Ans.9
To verify this, you can make a drawing of a cube, & number each of its 12 edges. Then, always starting from 1 corner & 1 edge, you can determine all of the possible combinations for tracing along the edges of a cube.

There is no need to start from other corners or edges of the cube, as you will only be repeating the same combinations. The process is a little more involved than this, but is useful for solving many types of spatial puzzles.

5.Answer
Mr. Bajaj is the Engineer and either his wife or his son is the Doctor.

Mr. Bajaj's wife and mother are not blood relatives. So from 3, if the Engineer is a female, the Doctor is a male. But from 1, if the Doctor is a male, then the Engineer is a male. Thus, there is a contradiction, if the Engineer is a female. Hence, either Mr. Bajaj or his son is the Engineer.
Mr. Bajaj's son is the youngest of all four and is blood relative of each of them. So from 2, Mr. Bajaj's son is not the Engineer. Hence, Mr. Bajaj is the Engineer.
Now from 2, Mr. Bajaj's mother can not be the Doctor. So the Doctor is either his wife or his son . It is not possible to determine anything further.

6.Answer
Carrie is married to Cam.

"Sam's wife and Billy's Husband play Carrie and Tina's husband at bridge."
It means that Sam is not married to either Billy or Carrie. Thus, Sam is married to Tina.
As Cam does not play bridge, Billy's husband must be Laurie.
Hence, Carrie is married to Cam.

7.Answer
One way to solve it is by making 3 equations and solve them simultaneously. But there is rather easier way to solve it using Backtracing.
It's given that at the end, each had 24 tractors (24, 24, 24) i.e. after Z gave tractors to X & Y as many as they had. It means that after getting tractors from Z their tractors got doubled. So before Z gave them tractors, they had 12 tractors each and Z had 48 tractors. (12, 12, 48)
Similarly, before Y gave tractors to X & Z, they had 6 & 24 tractors respectively and Y had 42 tractors i.e. (6, 42, 24)
Again, before X gave tractors to Y & Z, they had 21 & 12 tractors respectively and X had 39 tractors i.e. (39, 21, 12)
Hence, initially X had 39 tractors, Y had 21 tractors and Z had 12 tractors.

8.Answer
The sign-maker will need 192 zeroes.

Divide 1000 building numbers into groups of 100 each as follow:
(1..100), (101..200), (201..300), ... (901..1000)

For the first group, sign-maker will need 11 zeroes.
For group numbers 2 to 9, he will require 20 zeroes each.
And for group number 10, he will require 21 zeroes.

The total numbers of zeroes required are
= 11 + 8*20 + 21
= 11 + 160 + 21
= 192

9.ANSWER
It is always possible to find odd coin in 3 weighings and to tell whether the odd coin is heavier or lighter.
Take 8 coins and weigh 4 against 4.
If both are not equal, goto step 2
If both are equal, goto step 3
One of these 8 coins is the odd one. Name the coins on heavier side of the scale as H1, H2, H3 and H4. Similarly, name the coins on the lighter side of the scale as L1, L2, L3 and L4. Either one of H's is heavier or one of L's is lighter. Weigh (H1, H2, L1) against (H3, H4, X) where X is one coin remaining in intial weighing.
If both are equal, one of L2, L3, L4 is lighter. Weigh L2 against L3.
If both are equal, L4 is the odd coin and is lighter.
If L2 is light, L2 is the odd coin and is lighter.
If L3 is light, L3 is the odd coin and is lighter.
If (H1, H2, L1) is heavier side on the scale, either H1 or H2 is heavier. Weight H1 against H2
If both are equal, there is some error.
If H1 is heavy, H1 is the odd coin and is heavier.

If H2 is heavy, H2 is the odd coin and is heavier.
If (H3, H4, X) is heavier side on the scale, either H3 or H4 is heavier or L1 is lighter. Weight H3 against H4
If both are equal, L1 is the odd coin and is lighter.
If H3 is heavy, H3 is the odd coin and is heavier.
If H4 is heavy, H4 is the odd coin and is heavier.
The remaining coin X is the odd one. Weigh X against the anyone coin used in initial weighing.
If both are equal, there is some error.
If X is heavy, X is the odd coin and is heavier.
If X is light, X is the odd coin and is lighter.

10.Answer
Total 36 medals were awarded and the contest was for 6 days.
On day 1: Medals awarded = (1 + 35/7) = 6 : Remaining 30 medals
On day 2: Medals awarded = (2 + 28/7) = 6 : Remaining 24 medals
On day 3: Medals awarded = (3 + 21/7) = 6 : Remaining 18 medals
On day 4: Medals awarded = (4 + 14/7) = 6 : Remaining 12 medals
On day 5: Medals awarded = (5 +7/7) = 6 : Remaining 6 medals
On day 6: Medals awarded 6

I got this answer by writing small program. If anyone know any other simpler method, do submit it.

11.The answer is 381654729
One way to solve it is Trial-&-Error. You can make it bit easier as odd positions will always occupy ODD numbers and even positions will always occupy EVEN numbers. Further 5th position will contain 5 as 0 does not occur.

The other way to solve this problem is by writing a computer program that systematically tries all possibilities

12.Answer
Assume that contents of the container is X

On the first day 1/3rd is evaporated.
(1 - 1/3) of X is remaining i.e. (2/3)X

On the Second day 3/4th is evaporated. Hence,
(1- 3/4) of (2/3)X is remaining
i.e. (1/4)(2/3)X = (1/6) X

Hence 1/6th of the contents of the container is remaining

13.Answer
Vipul studied for 3 hours in candle light.

Assume that the initial lenght of both the candle was L and Vipul studied for X hours.

In X hours, total thick candle burnt = XL/6

In X hours, total thin candle burnt = XL/4

After X hours, total thick candle remaining = L - XL/6
After X hours, total thin candle remaining = L - XL/4

Also, it is given that the thick candle was twice as long as the thin one when he finally went to sleep.
(L - XL/6) = 2(L - XL/4)
(6 - X)/6 = (4 - X)/2
(6 - X) = 3*(4 - X)
6 - X = 12 - 3X
2X = 6
X = 3

Hence, Vipul studied for 3 hours i.e. 180 minutes in candle light.

14.Answer
Rs.333,062,500

To begin with, you want to know the total number of days: 365 x 50 = 18250.

By experimentation, the following formula can be discovered, & used to determine the amount earned for any particular day: 1 + 2(x-1), with x being the number of the day. Take half of the 18250 days, & pair them up with the other half in the following way: day 1 with day 18250, day 2 with day 18249, & so on, & you will see that if you add these pairs together, they always equal Rs.36500.

Multiply this number by the total number of pairs (9125), & you have the amount you would have earned in 50 years.

15.Answer
Rs.22176

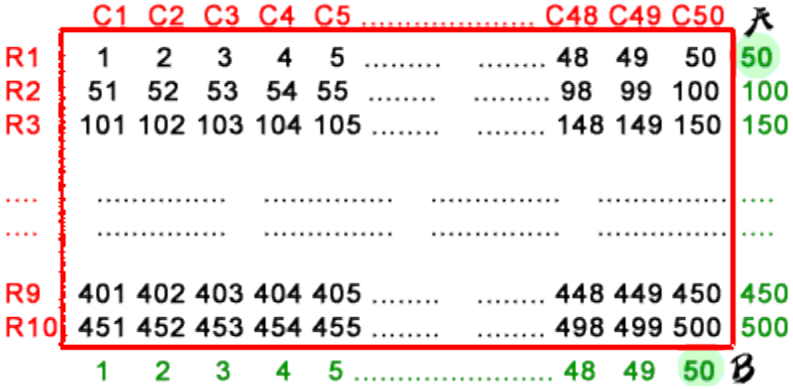
Assume his salary was Rs. X
He earns 5% raise. So his salary is (105*X)/100
A year later he receives 2.5% cut. So his salary is ((105*X)/100)*(97.5/100) which is Rs. 22702.68
Hence, solving equation ((105*X)/100)*(97.5/100) = 22702.68
X = 22176

16.Answer
66 seconds

It is given that the time between first and last ticks at 6'o is 30 seconds.
Total time gaps between first and last ticks at 6'o = 5
(i.e. between 1 & 2, 2 & 3, 3 & 4, 4 & 5 and 5 & 6)
So time gap between two ticks = 30/5 = 6 seconds.

Now, total time gaps between first and last ticks at 12'o = 11
Therefore time taken for 12 ticks = 11 * 6 = 66 seconds (and not 60 seconds)

17.



No one is taller, both are same as A and B are the same person.

As it is mentioned that 500 men are arranged in an array of 10 rows and 50 columns according to their heights. Let's assume that position numbers represent their heights. Hence, the shortest among the 50, 100, 150, ... 450, 500 is person with height 50 i.e. A. Similarly the tallest among 1, 2, 3, 4, 5, ... 48, 48, 50 is person with height 50 i.e. B

Now, both A and B are the person with height 50. Hence both are same.

18.Answer
There are 7 members in Mr. Mehta's family. Mother & Father of Mr. Mehta, Mr. & Mrs. Mehta, his son and two daughters.
Mother & Father of Mr. Mehta
|
Mr. & Mrs. Mehta
|
One Son & Two Daughters

19.Answer
The soldier said, "You will put me to the sword."

The soldier has to say a Paradox to save himself. If his statement is true, he will be hanged, which is not the sword and hence false. If his statement is false, he will be put to the sword, which will make it true. A Paradox !!!

20.Answer
As given, the person wanted to withdraw 100X + Y paise.
But he got 100Y + X paise.
After spending 20 paise, he has double the amount he wanted to withdraw. Hence, the equation is

$$2 * (100X + Y) = 100Y + X - 20$$

200X + 2Y = 100Y +X - 20

199X - 98Y = -20

98Y - 199X = 20

Now, we got one equation; but there are 2 variables. We have to apply little bit of logic over here. We know that if we interchange X & Y, amount gets double. So Y should be twice of X or one more than twice of X i.e. Y = 2X or Y = 2X+1

Case I : Y=2X
Solving two equations simultaneously
98Y - 199X = 20
Y - 2X = 0
We get X = - 20/3 & Y = - 40/2

Case II : Y=2X+1
Solving two equations simultaneously
98Y - 199X = 20
Y - 2X = 1
We get X = 26 & Y = 53

Now, its obvious that he wanted to withdraw Rs. 26.53

21.Answer
O will win the game. The sixth mark was X in square 9.
The 7th mark must be placed in square 5 which is the win situation for both X and O. Hence, the 6th mark must be placed in a line already containing two of the opponents marks. There are two such possibilities - the 6th mark would have been either O in square 7 or X in square 9.

As we know both the players are intelligent enough, the 6th mark could not be O in square 7. Instead, he would have placed O in square 5 and would have won.

Hence, the sixth mark must be X placed in square 9. And the seventh mark will be O. Thus O will win the game.

22.Answer
Statement (4) is false. There are 3 men, 8 women and 6 children.

Assume that Statements (4), (5) and (6) are all true. Then, Statement (1) is false. But then Statement (2) and (3) both can not be true. Thus, contradictory to the fact that exactly one statement is false.

So Statement (4) or Statement (5) or Statement (6) is false. Also, Statements (1), (2) and (3) all are true.

From (1) and (2), there are 11 men and women. Then from (3), there are 2 possible cases - either

there are 8 men and 3 women or there are 3 men and 8 women.

If there are 8 men and 3 women, then there is 1 child. Then Statements (4) and (5) both are false, which is not possible.

Hence, there are 3 men, 8 women and 6 children. Statement (4) is false.

23.Answer
The individual student should pay Rs. 50 for their journey.

Note that 3 persons are travelling between Bandra and Colaba.

The entire trip costs Rs. 300 to Mr. Subramanian. Hence, half of the trip costs Rs. 150.

For Andheri-Bandra-Andheri, only one person i.e. Mr. Subramaniam is travelling. Hence, he would pay Rs. 150.

For Bandra-Colaba-Bandra, three persons i.e Mr. Subramaniam and two students, are travelling. Hence, each student would pay Rs. 50.

Answer
42% houses do not have tubelight, bulb and fan.

Let's assume that there are 100 houses. Hence, there should be total 300 items i.e. 100 tubelights, 100 bulbs and 100 fans.

From the given data, we know that there is shortage of atleast (67+83+73) 223 items in every 100 houses.

Also, exactly 19 houses do not have just one item. It means that remaining 81 houses should account for the shortage of remaining (223-19) 204 items. If those remaining 81 houses do not have 2 items each, there would be a shortage of 162 items. But total of 204 items are short. Hence, atleast (204-162) 42 houses do not have all 3 items - tubelight, bulb and fan.

Thus, 42% houses do not have tubelight, bulb and fan.

24.Substitute digits for the letters to make the following Division true

```
          O U T
       ------------
 S T E M | D E M I S E
       | D M O C
       ------------
         T U I S
         S T E M
        ----------
          Z Z Z E
          Z U M M
         --------
            I S T
```

Note that the leftmost letter can't be zero in any word. Also, there must be a one-to-one mapping between digits and letters. e.g. if you substitute 3 for the letter M, no other letter can be 3 and all other M in the puzzle must be
Answer
C=0, U=1, S=2, T=3, O=4, M=5, I=6, Z=7, E=8, D=9

It is obvious that U=1 (as U*STEM=STEM) and C=0 (as I-C=I).

S*O is a single digit and also S*T is a single digit. Hence, their values (O, S, T) must be 2, 3 or 4 (as they can not be 0 or 1 or greater than 4).

Consider, STEM*O=DMOC, where C=0. It means that M must be 5. Now, its simple. O=4, S=2, T=3, E=8, Z=7, I=6 and D=9.

```
          O U T              4 1 3
       ------------       ------------
 S T E M | D E M I S E    2 3 8 5 | 9 8 5 6 2 8
       | D M O C            | 9 5 4 0
       ------------       ------------
         T U I S            3 1 6 2
         S T E M            2 3 8 5
        ----------         ----------
         Z Z Z E            7 7 7 8
         Z U M M            7 1 5 5
        --------           --------
         I S T              6 2 3
```

Also, when arranged from 0 to 9, it spells CUSTOMIZED.

25.At what time after 4.00 p.m. is the minutes hand of a clock exactly aligned with the hour hand?

Answer
4:21:49.5

Assume that X minutes after 4.00 PM minute hand exactly aligns with and hour hand.

For every minute, minute hand travels 6 degrees.
Hence, for X minutes it will travel 6 * X degrees.
For every minute, hour hand travels 1/2 degrees.
Hence, for X minutes it will travel X/2 degrees.
At 4.00 PM, the angle between minute hand and hour hand is 120 degrees. Also, after X minutes, minute hand and hour hand are exactly aligned. So the angle with respect to 12 i.e. Vertical Plane will be same. Therefore,

6 * X = 120 + X/2
12 * X = 240 + X
11 * X = 240
X = 21.8182
X = 21 minutes 49.5 seconds

Hence, at 4:21:49.5 minute hand is exactly aligned with the hour hand.

25. A soldier looses 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?

Answer
The soldier is 0.8944 miles away from his camp towards East-North.

It is obvious that he is in East-North direction.

Distance travelled in North and South directions
= 1/2 - 1/8 + 1/32 - 1/128 + 1/512 - 1/2048 + and so on... (a geometric series with r = (-1/4))

$$= \frac{(1/2) * (1 - (-1/4)^n)}{(1 - (-1/4))}$$

= 1 / (2 * (1 - (-1/4)))

= 2/5

Similarly in East and West directions
= 1 - 1/4 + 1/16 - 1/64 + 1/256 - and so on... (a geometric series with r = (-1/4))

$$= \frac{(1) * (1 - (-1/4)^n)}{(1 - (-1/4))}$$

= 1 / ((1- (-1/4))
= 4/5

So the soldier is 4/5 miles away towards East and 2/5 miles away towards North. So using right angled triangle, soldier is 0.8944 miles away from his camp.

26.Raj has a jewel chest containing Rings, Pins and Ear-rings. The chest contains 26 pieces. Raj has 2 1/2 times as many rings as pins, and the number of pairs of earrings is 4 less than the number of rings.

How many earrings does Raj have?

Answer
12 earrings

Assume that there are R rings, P pins and E pair of ear-rings.

It is given that, he has 2 1/2 times as many rings as pins.

R = (5/2) * P or P = (2*R)/5

And, the number of pairs of earrings is 4 less than the number of rings.
E = R - 4 or R = E + 4

Also, there are total 26 pieces.
R + P + 2*E = 26
R + (2*R)/5 + 2*E = 26
5*R + 2*R + 10*E = 130
7*R + 10*E = 130
7*(E + 4) + 10*E = 130
7*E + 28 + 10*E = 130
17*E = 102
E = 6

Hence, there are 6 pairs of Ear-rings i.e. total 12 Ear-rings

27.How many ways are there of arranging the sixteen black or white pieces of a standard international chess set on the first two rows of the board?
Given that each pawn is identical and each rook, knight and bishop is identical to its pair.

Answer
6,48,64,800 ways

There are total 16 pieces which can be arranged on 16 places in $^{16}P_{16}$ = 16! ways.
(16! = 16 * 15 * 14 * 13 * 12 * ..... * 3 * 2 * 1)

But, there are some duplicate combinations because of identical pieces.
There are 8 identical pawn, which can be arranged in $^{8}P_{8}$ = 8! ways.
Similarly there are 2 identical rooks, 2 identical knights and 2 identical bishops. Each can be arranged in $^{2}P_{2}$ = 2! ways.
Hence, the require answer is
= (16!) / (8! * 2! * 2! * 2!)
= 6,48,64,800

28.A person with some money spends 1/3 for cloths, 1/5 of the remaining for food and 1/4 of the remaining for travel. He is left with Rs 100/-
How much did he have with him in the begining?

Answer
Rs. 250/-

Assume that initially he had Rs. X
He spent 1/3 for cloths =. (1/3) * X
Remaining money = (2/3) * X

He spent 1/5 of remaining money for food = (1/5) * (2/3) * X = (2/15) * X
Remaining money = (2/3) * X - (2/15) * X = (8/15) * X

Again, he spent 1/4 of remaining maoney for travel = (1/4) * (8/15) * X = (2/15) * X
Remaining money = (8/15) * X - (2/15) * X = (6/15) * X

But after spending for travel he is left with Rs. 100/- So
(6/15) * X = 100
X = 250

29.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?

Answer
20 cows

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

From given data,
g + 24*r = 70 * 24 * y ---------- A
g + 60*r = 30 * 60 * y ---------- B
g + 96*r = n * 96 * y ---------- C

Solving for (B-A),
(60 * r) - (24 * r) = (30 * 60 * y) - (70 * 24 * y)
36 * r = 120 * y ---------- D

Solving for (C-B),
(96 * r) - (60 * r) = (n * 96 * y) - (30 * 60 * y)
36 * r = (n * 96 - 30 * 60) * y
120 * y = (n * 96 - 30 * 60) * y [From D]
120 = (n * 96 - 1800)
n = 20

Hence, 20 cows are needed to eat the grass in 96 days.

30.There is a safe with a 5 digit number as the key. The 4th digit is 4 greater than the second digit, while the 3rd digit is 3 less than the 2nd digit. The 1st digit is thrice the last digit. There are 3 pairs whose sum is 11. Find the number.

Answer
65292

As per given conditions, there are three possible combinations for 2nd, 3rd and 4th digits. They are (3, 0, 7) or (4, 1, 8) or (5, 2, 9)

It is given that there are 3 pairs whose sum is 11. All possible pairs are (2, 9), (3, 8), (4, 7), (5, 6). Now required number is 5 digit number and it contains 3 pairs of 11. So it must not be having

0 and 1 in it. Hence, the only possible combination for 2nd, 3rd and 4th digits is (5, 2, 9)

Also, 1st digit is thrice the last digit. The possible combinations are (3, 1), (6, 2) and (9, 3), out of which only (6, 2) with (5, 2, 9) gives 3 pairs of 11. Hence, the answer is 65292.

31.Four friends - Arjan, Bhuvan, Guran and Lakha were comparing the number of sheep that they owned. It was found that Guran had ten more sheep than Lakha. If Arjan gave one-third to Bhuvan, and Bhuvan gave a quarter of what he then held to Guran, who then passed on a fifth of his holding to Lakha, they would all have an equal number of sheep. How many sheep did each of them possess? Give the minimal possible answer

Answer

	Arjan	Bhuvan	Guran	Lakha
Initially	A	B	G	L
Arjan gave 1/3 to Bhuvan	2A/3	A/3+B	G	L
Bhuvan gave 1/4 to Guran	2A/3	A/4+3B/4	A/12+B/4+G	L
Guran gave 1/5 to Lakha	2A/3	A/4+3B/4	A/15+B/5+4G/5	A/60+B/20+G/5+L

Arjan, Bhuvan, Guran and Lakha had 90, 50, 55 and 45 sheep respectively.

Assume that Arjan, Bhuvan, Guran and Lakha had A, B, G and L sheep respectively. As it is given that at the end each would have an equal number of sheep, comparing the final numbers from the above table.

Arjan's sheep = Bhuvan's sheep
2A/3 = A/4 + 3B/4
8A = 3A + 9B
5A = 9B

Arjan's sheep = Guran's sheep
2A/3 = A/15 + B/5 + 4G/5
2A/3 = A/15 + A/9 + 4G/5 (as B=5A/9)
30A = 3A + 5A + 36G
22A = 36G
11A = 18G

Arjan's sheep = Lakha's sheep
2A/3 = A/60 + B/20 + G/5 + L
2A/3 = A/60 + A/36 + 11A/90 + L (as B=5A/9 and G=11A/18)
2A/3 = A/6 + L
A/2 = L
A = 2L

Also, it is given that Guran had ten more sheep than Lakha.
G = L + 10
11A/18 = A/2 + 10
A/9 = 10
A = 90 sheep

Thus, Arjan had 90 sheep, Bhuvan had 5A/9 i.e. 50 sheep, Guran had 11A/18 i.e. 55 sheep and Lakha had A/2 i.e. 45 sheep.

32.Consider a number 235, where last digit is the sum of first two digits i.e. 2 + 3 = 5. How many such 3-digit numbers are there?

Answer
There are 45 different 3-digit numbers.

The last digit can not be 0.

If the last digit is 1, the only possible number is 101. (Note that 011 is not a 3-digit number)
If the last digit is 2, the possible numbers are 202 and 112.
If the last digit is 3, the possible numbers are 303, 213 and 123.
If the last digit is 4, the possible numbers are 404, 314, 224 and 134.
If the last digit is 5, the possible numbers are 505, 415, 325, 235 and 145.

Note the pattern here - If the last digit is 1, there is only one number. If the last digit is 2, there are two numbers. If the last digit is 3, there are three numbers. If the last digit is 4, there are four numbers. If the last digit is 5, there are five numbers. And so on.....

Thus, total numbers are
1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9 = 45

Altogether then, there are 45 different 3-digit numbers, where last digit is the sum of first two digits.
33.Find the smallest number such that if its rightmost digit is placed at its left end, the new number so formed is precisely 50% larger than the original number.

Answer
285714.

If its rightmost digit is placed at its left end, then new number is 428571 which is 50% larger than the original number 285714.

34.The simplest way is to write a small program. And the other way is trial and error !!! Two identical pack of cards A and B are shuffled throughly. One card is picked from A and shuffled with B. The top card from pack A is turned up. If this is the Queen of Hearts, what are the chances that the top card in B will be the King of Hearts?

Answer
52 / 2703

There are two cases to be considered.
CASE 1 : King of Hearts is drawn from Pack A and shuffled with Pack B
Probability of drawing King of Hearts from Pack A = 1/51 (as Queen of Hearts is not to be drawn)
Probability of having King of Hearts on the top of the Pack B = 2/53
So total probability of case 1 = (1/51) * (2/53) = 2 / (51 * 53)

CASE 2 : King of Hearts is not drawn from Pack A
Probability of not drawing King of Hearts from Pack A = 50/51 (as Queen of Hearts is not to be drawn)
Probability of having King of Hearts on the top of the Pack B = 1/53

So total probability of case 2 = (50/51) * (1/53) = 50 / (51 * 53)

Now adding both the probability, the required probability is
= 2 / (51 * 53) + 50 / (51 * 53)
= 52 / (51 * 53)
= 52 / 2703
= 0.0192378

35.There are 3 ants at 3 corners of a triangle, they randomly start moving towards another corner. What is the probability that they don't collide?

Answer
Let's mark the corners of the triangle as A,B,C. There are total 8 ways in which ants can move.
A->B, B->C, C->A
A->B, B->C, C->B
A->B, B->A, C->A
A->B, B->A, C->B
A->C, C->B, B->A
A->C, C->B, B->C
A->C, C->A, B->A
A->C, C->A, B->C
Out of which, there are only two cases under which the ants won't collide :
A->B, B->C, C->A
A->C, C->B, B->A

36.Find all sets of consecutive integers that add up to 1000.

Answer
There are total 8 such series:
Sum of 2000 numbers starting from -999 i.e. summation of numbers from -999 to 1000.
(-999) + (-998) + (-997) + ... + (-1) + 0 + 1 + 2 + ... + 997 + 998 + 999 + 1000 = 1000
Sum of 400 numbers starting from -197 i.e. summation of numbers from -197 to 202.
(-197) + (-196) + (-195) + ... + (-1) + 0 + 1 + 2 + ... + 199 + 200 + 201 + 202 = 1000
Sum of 125 numbers starting from -54 i.e. summation of numbers from -54 to 70.
(-54) + (-53) + (-52) + ... + (-1) + 0 + 1 + 2 + ... + 68 + 69 + 70 = 1000
Sum of 80 numbers starting from -27 i.e. summation of numbers from -27 to 52.
(-27) + (-26) + (-25) + ... + (-1) + 0 + 1 + 2 + ... + 50 + 51 + 52 = 1000

Sum of 25 numbers starting from 28 i.e. summation of numbers from 28 to 52.
28 + 29 + 30 + 31 + 32 + 33 + 34 + 35 + 36 + 37 + 38 + 39 + 40 + 41 + 42 + 43 + 44 + 45 + 46 + 47 + 48 + 49 + 50 + 51 + 52 = 1000
Sum of 16 numbers starting from 55 i.e. summation of numbers from 55 to 70.
55 + 56 + 57 + 58 + 59 +60 + 61 + 62 + 63 + 64 + 65 + 66 + 67 + 68 + 69 + 70 = 1000
Sum of 5 numbers starting from 198 i.e. summation of numbers from 198 to 202.
198 + 199 + 200 +201 + 202 = 1000
Sum of 1 number starting from 1000.
1000 = 1000

37.There is a 4-character code, with 2 of them being letters and the other 2 being numbers. How many maximum attempts would be necessary to find the correct code? Note that the code is case-sensitive.

Answer
The maximum number of attempts required are 16,22,400

There are 52 possible letters - a to z and A to Z, and 10 possible numbers - 0 to 9. Now, 4 characters - 2 letters and 2 numbers, can be selected in 52*52*10*10 ways. These 4 characters can be arranged in ${}^4C_2$ i.e. 6 different ways - the number of unique patterns that can be formed by lining up 4 objects of which 2 are distinguished one way (i.e. they must be letters) and the other 2 are distinguished another way (i.e. they must be numbers).

Consider an example : Let's assume that @ represents letter and # represents number. the 6 possible ways of arranging them are : @@##, @#@#, @##@, #@@#, #@#@, ##@@

Hence, the required answer is
= 52*52*10*10*6
= 16,22,400 attempts
= 1.6 million approx.

38.How many possible combinations are there in a 3x3x3 rubics cube?
In other words, if you wanted to solve the rubics cube by trying different combinations, how many might it take you (worst case senerio)?
How many for a 4x4x4 cube?

Answer
There are 4.3252 * 10^19 possible combinations for 3x3x3 Rubics and 7.4012 * 10^45 possible combinations for 4x4x4 Rubics.

Let's consider 3x3x3 Rubics first.

There are 8 corner cubes, which can be arranged in 8! ways.
Each of these 8 cubes can be turned in 3 different directions, so there are 3^8 orientations altogether. But if you get all but one of the corner cube into chosen positions and orientations, only one of 3 orientations of the final corner cube is possible. Thus, total ways corner cubes can be placed = (8!) * (3^8)/8 = (8!) * (3^7)

Similarly, 12 edge cubes can be arranged in 12! ways.
Each of these 12 cubes can be turned in 2 different directions, so there are 2^12 orientations altogether. But if you get all but one of the edge cube into chosen positions and orientations, only one of 2 orientations of the final edge cube is possible. Thus, total ways edge cubes can be placed = (12!) * (2^12)/2 = (12!) * (2^11)

Here, we have essentially pulled the cubes apart and stuck cubes back in place wherever we please. In reality, we can only move cubes around by turning the faces of the cubes. It turns out that you can't turn the faces in such a way as to switch the positions of two cubes while returning all the others to their original positions. Thus if you get all but two cubes in place, there is only one attainable choice for them (not 2!). Hence, we must divide by 2.

Total different possible combinations are
= [(8!) * (3^7)] * [(12!) * (2^11)] / 2
= (8!) * (3^7) * (12!) * (2^10)
= 4.3252 * 10^19

Similarly, for 4x4x4 Rubics total different possible combinations are
= [(8!) * (3^7)] * [(24!)] * [(24!) / (4!^6)] / 24
= 7.4011968 * 10^45

Note that there are 24 edge cubes, which you can not turn in 2 orientations (hence no 2^24 / 2). Also, there are 4 center cubes per face i.e. (24!) / (4!^6). You can switch 2 cubes without affecting the rest of the combination as 4*4*4 has even dimensions (hence no division by 2). But pattern on one side is rotated in 4 directions over 6 faces, hence divide by 24.

38. Substitute digits for the letters to make the following relation true.

```
  N E V E R
  L E A V E

+     M E
----------
  A L O N E
```

Note that the leftmost letter can't be zero in any word. Also, there must be a one-to-one mapping between digits and letters. e.g. if you substitute 3 for the letter M, no other letter can be 3 and all other M in the puzzle must be 3.

Answer
A tough one!!!
Since R + E + E = 10 + E, it is clear that R + E = 10 and neither R nor E is equal to 0 or 5. This is the only entry point to

solve it. Now use trial-n-error method.

```
  N E V E R        2 1 4 1 9
  L E A V E        3 1 5 4 1
+     M E      +      6 1
```

A L O N E	5 3 0 2 1

39.One of the four people - Mr. Clinton, his wife Monika, their son Mandy and their daughter Cindy - is a singer and another is a dancer. Mr. Clinton is older than his wife and Mady is older than his sister.
If the singer and the dancer are the same sex, then the dancer is older than the singer.
If neither the singer nor the dancer is the parent of the other, then the singer is older than the dancer.
If the singer is a man, then the singer and the dancer are the same age.
If the singer and the dancer are of opposite sex then the man is older than the woman.
If the dancer is a woman, then the dancer is older than the singer.
Whose occupation do you know? And what is his/her occupation?

Answer
Cindy is the Singer. Mr. Clinton or Monika is the Dancer.

From (1) and (3), the singer and the dancer, both can not be a man. From (3) and (4), if the singer is a man, then the dancer must be a man. Hence, the singer must be a woman.

CASE I : Singer is a woman and Dancer is also a woman
Then, the dancer is Monika and the singer is Cindy.

CASE II : Singer is a woman and Dancer is also a man
Then, the dancer is Mr. Clinton and the singer is Cindy.

In both the cases, we know that Cindy is the Singer. And either Mr. Clinton or Monika is the Dancer.

40.There are 20 people in your applicant pool, including 5 pairs of identical twins.
If you hire 5 people randomly, what are the chances you will hire at least 1 pair of identical twins? (Needless to say, this could cause trouble ;))

Answer

The probability to hire 5 people with at least 1 pair of identical twins is 25.28%

5 people from the 20 people can be hired in 20C5 = 15504 ways.

Now, divide 20 people into two groups of 10 people each :
G1 - with all twins
G2 - with all people other than twins

Let's find out all possible ways to hire 5 people without a single pair of indentical twins.

People from G1	People from G2	No of ways to hire G1 without a single pair of indentical twins	No of ways to hire G2	Total ways
0	5	10C0	10C5	252
1	4	10C1	10C4	2100

2	3	10C2 * 8/9	10C3	4800
3	2	10C3 * 8/9 * 6/8	10C2	3600
4	1	10C4 * 8/9 * 6/8 * 4/7	10C1	800
5	0	10C5 * 8/9 * 6/8 * 4/7 * 2/6	10C0	32
Total				11584

Thus, total possible ways to hire 5 people without a single pair of indentical twins = 11584 ways

So, total possible ways to hire 5 people with at least a single pair of indentical twins = 15504 - 11584 = 3920 ways

Hence, the probability to hire 5 people with at least a single pair of indentical twins
= 3920/15504
= 245/969
= 0.2528
= 25.28%

41.In a hotel, rooms are numbered from 101 to 550. A room is chosen at random. What is the probability that room number starts with 1, 2 or 3 and ends with 4, 5 or 6?

Answer
There are total 450 rooms.

Out of which 299 room number starts with either 1, 2 or 3. (as room number 100 is not there)
Now out of those 299 rooms only 90 room numbers end with 4, 5 or 6

So the probability is 90/450 i.e. 1/5 or 0.20
Draw 9 dots on a page, in the shape of three rows of three dots to form a square. Now place your pen on the page, draw 4 straight lines and try and cover all the dots.

You're not allowed to lift your pen.

Note: Don't be confined by the dimensions of the square.

42.There are 3 persons X, Y and Z. On some day, X lent tractors to Y and Z as many as they had. After a month Y gave as many tractors to X and Z as many as they have. After a month Z did the same thing. At the end of this transaction each one of them had 24. Find the tractors each originally had?

Answer
One way to solve it is by making 3 equations and solve them simultaneously. But there is rather easier way to solve it using Backtracing.

It's given that at the end, each had 24 tractors (24, 24, 24) i.e. after Z gave tractors to X & Y as many as they had. It means that after getting tractors from Z their tractors got doubled. So before Z gave them tractors, they had 12 tractors each and Z had 48 tractors. (12, 12, 48)

Similarly, before Y gave tractors to X & Z, they had 6 & 24 tractors respectively and Y had 42 tractors i.e. (6, 42, 24)

Again, before X gave tractors to Y & Z, they had 21 & 12 tractors respectively and X had 39 tractors i.e. (39, 21, 12)

Hence, initially X had 39 tractors, Y had 21 tractors and Z had 12 tractors.

43.There is a 50m long army platoon marching ahead. The last person in the platoon wants to give a letter to the first person leading the platoon. So while the platoon is marching he runs ahead, reaches the first person and hands over the letter to him and without stopping he runs and comes back to his original position.
In the mean time the whole platoon has moved ahead by 50m.
The question is how much distance did the last person cover in that time. Assuming that he ran the whole distance with uniform speed.

Answer
The last person covered 120.71 meters.

It is given that the platoon and the last person moved with uniform speed. Also, they both moved for the identical amount of time. Hence, the ratio of the distance they covered - while person moving forward and backword - are equal.

Let's assume that when the last person reached the first person, the platoon moved X meters forward.

Thus, while moving forward the last person moved (50+X) meters whereas the platoon moved X meters.

Similarly, while moving back the last person moved [50-(50-X)] X meters whereas the platoon moved (50-X) meters.

Now, as the ratios are equal,
(50+X)/X = X/(50-X)
(50+X)*(50-X) = X*X

Solving, X=35.355 meters

Thus, total distance covered by the last person
= (50+X) + X
= 2*X + 50
= 2*(35.355) + 50
= 120.71 meters

Note that at first glance, one might think that the total distance covered by the last person is 100 meters, as he ran the total lenght of the platoon (50 meters) twice. TRUE, but that's the relative distance covered by the last person i.e. assuming that the platoon is stationary.

44.Assume that you have enough coins of 1, 5, 10, 25 and 50 cents.
How many ways are there to make change for a dollar? Do explain your answer.

Amt	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Coins																					
.01	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
.05	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
.10	1	2	4	6	9	12	16	20	25	30	36	42	49	56	64	72	81	90	100	110	121
.25	1	2	4	6	9	13	18	24	31	39	49	60	73	87	103	121	141	163	187	213	242
.50	1	2	4	6	9	13	18	24	31	39	50	62	77	93	112	134	159	187	218	252	292

There are 292 ways to make change for a dollar using coins of 1, 5, 10, 25 and 50 cents.

Let's generalised the teaser and make a table as shown above.

If you wish to make change for 75 cents using only 1, 5, 10 and 25 cent coins, go to the .25 row and the 75 column to obtain 121 ways to do this.

The table can be created from left-to-right and top-to-bottom. Start with the top left i.e. 1 cent row. There is exactly one way to make change for every amount. Then calculate the 5 cents row by adding the number of ways to make change for the amount using 1 cent coins plus the number of ways to make change for 5 cents less using 1 and 5 cent coins.

Let's take an example:
To get change for 50 cents using 1, 5 and 10 cent coins.
* 50 cents change using 1 and 5 cent coins = 11 ways
* (50-10) 40 cents change using 1, 5 and 10 cent coins = 25 ways
* 50 cents change using 1, 5 and 10 cent coins = 11+25 = 36 ways

Let's take another example:
To get change for 75 cents using all coins up to 50 cent i.e. 1, 5, 10, 25 and 50 cents coins.
* 75 cents change using coins upto 25 cent = 121 ways
* (75-50) 25 cents change using coins upto 50 cent = 13 ways
* 75 cents change using coins upto 50 cent = 121+13 = 134 ways

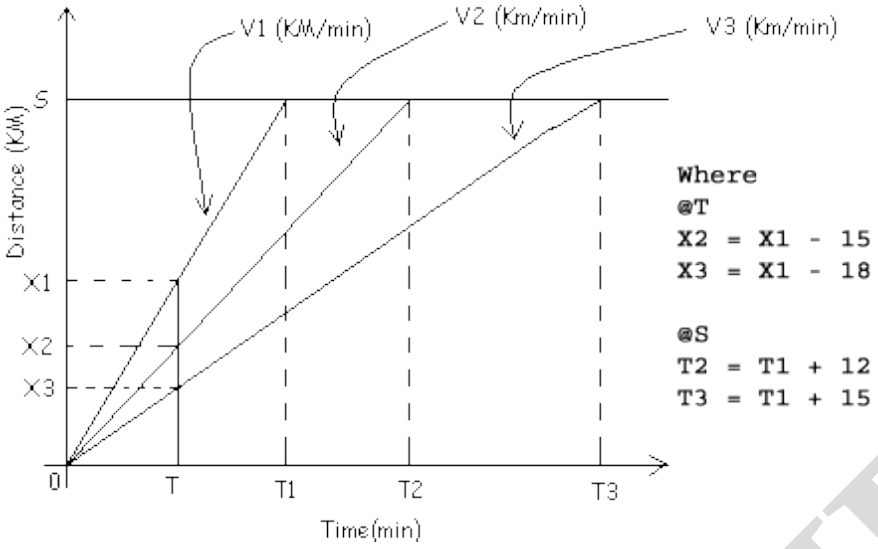
For people who don't want to tease their brain and love to do computer programming, there is a simple way. Write a small multi-loop program to solve the equation: A + 5B + 10C + 25D + 50E = 100
where,
A = 0 to 100
B = 0 to 20
C = 0 to 10
D = 0 to 4
E = 0 to 2

The program should output all the possible values of A, B, C, D and E for which the equation is satisfied.

45. In a Road Race, one of the three bikers was doing 15km less than the first and 3km more than the third. He also finished the race 12 minutes after the first and 3 minutes before the third.
Can you find out the speed of each biker, the time taken by each biker to finish the race and the length of the course?

Assume that there were no stops in the race and also they were driving with constant speeds through out the

Answer



Let us assume that
Speed of First biker = V1 km/min
Speed of Second biker = V2 km/min
Speed of Third biker = V3 km/min
Total time take by first biker = T1 min
Total distance = S km

Now as per the data given in the teaser, at a time T min

X1 = V1 * T ----> 1

X1 - 15 = V2 * T ----> 2

X1 - 18 = V3 * T ----> 3

At a Distance S Km.

S = V1 * T1 ----> 4

S = V2 * (T1 + 12) ----> 5

S = V3 * (T1 + 15) ----> 6

Thus there are 6 equations and 7 unknown data that means it has infinite number of solutions.

By solving above 6 equations we get,
Time taken by first biker, T1 = 60 Min.
Time taken by Second biker, T2 = 72 Min.
Time taken by first biker, T3 = 75 Min.

Also, we get
Speed of first biker, V1 = 90/T km/min

Speed of second biker, V2 = (5/6)V1 = 75/T km/min
Speed of third biker, V3 = (4/5)V1 = 72/T km/min

Also, the length of the course, S = 5400/T km

Thus, for the data given, only the time taken by each biker can be found i.e. 60, 72 and 75 minutes. For other quantities, one more independent datum is required i.e. either T or V1 or V2 or V3

46.What is the four-digit number in which the first digit is 1/3 of the second, the third is the sum of the first and second, and the last is three times the second?

Answer
The 4 digit number is 1349.

It is given that the first digit is 1/3 of the second. There are 3 such possibilities.
1 and 3
2 and 6
3 and 9
Now, the third digit is the sum of the first and second digits.
1 + 3 = 4
2 + 6 = 8
3 + 9 = 12
It is clear that option 3 is not possible. So we are left with only two options. Also, the last digit is three times the second, which rules out the second option. Hence, the answer is 1349.

47.Difference between Bholu's and Molu's age is 2 years and the difference between Molu's and Kolu's age is 5 years.
What is the maximum possible value of the sum of the difference in their ages, taken two at a time?

Answer
The maximum possible value of the sum of the difference in their ages - taken two at a time - is 14 years.

It is given that -
"Difference between Bholu's and Molu's age is 2 years"
"Difference between Molu's and Kolu's age is 5 years"

Now, to get the maximum possible value, the difference between Bholu's and Kolu's age should be maximum i.e. Molu's age should be in between Bholu's and Kolu's age. Then, the difference between Bholu's and Kolu's age is 7 years.

Hence, the maximum possible value of the sum of the difference in their ages - taken two at a time - is (2 + 5 + 7) 14 years.
If it is given that:

48.

25 - 2 = 3
100 x 2 = 20
36 / 3 = 2
What is 144 - 3 = ?

Answer
There are 3 possible answers to it.

Answer 1 : 9
Simply replace the first number by its square root.
(25) 5 - 2 = 3
(100) 10 x 2 = 20
(36) 6 / 3 = 2
(144) 12 - 3 = 9

Answer 2 : 11
Drop the digit in the tens position from the first number.
(2) 5 - 2 = 3
1 (0) 0 x 2 = 20
(3) 6 / 3 = 2
1 (4) 4 - 3 = 11

You will get the same answer on removing left and right digit alternatively from the first number i.e remove left digit from first (2), right digit from second (0), left digit from third (3) and right digit from forth (4).
(2) 5 - 2 = 3
10 (0) x 2 = 20
(3) 6 / 3 = 2
14 (4) - 3 = 11

Answer 3 : 14
Drop left and right digit alternatively from the actual answer.
25 - 2 = (2) 3 (drop left digit i.e. 2)
100 * 2 = 20 (0) (drop right digit i.e. 0)
36 / 3 = (1) 2 (drop left digit i.e. 1)
144 - 3 = 14 (1) (drop right digit i.e. 1)

50.A 3 digit number is such that it's unit digit is equal to the product of the other two digits which are prime. Also, the difference between it's reverse and itself is 396.
What is the sum of the three digits?

Answer
The required number is 236 and the sum is 11.

It is given that the first two digits of the required number are prime numbers i.e. 2, 3, 5 or 7. Note that 1 is neither prime nor composite. Also, the third digit is the multiplication of the first two digits. Thus, first two digits must be either 2 or 3 i.e. 22, 23, 32 or 33 which means that there are four possible numbers - 224, 236, 326 and 339.

Now, it is also given that - the difference between it's reverse and itself is 396. Only 236 satisfies this condition. Hence, the sum of the three digits is 11.

There are 4 mugs placed upturned on the table. Each mug have the same number of marbles and a statement about the number of marbles in it. The statements are: Two or Three, One or Four, Three or One, One or Two.
Only one of the statement is correct. How many marbles are there under each mug?

Answer
A simple one.

As it is given that only one of the four statement is correct, the correct number can not appear in more than one statement. If it appears in more than one statement, then more than one statement will be correct.

Hence, there are 4 marbles under each mug.
At University of Probability, there are 375 freshmen, 293 sophomores, 187 juniors, & 126 seniors. One student will randomly be chosen to receive an award.

What percent chance is there that it will be a junior? Round to the nearest whole percent
Answer

19%

This puzzle is easy. Divide the number of juniors (187) by the total number of students (981), & then multiply the number by 100 to convert to a percentage.

Hence the answer is (187/981)*100 = 19%

If you were to dial any 7 digits on a telephone in random order, what is the probability that you will dial your own phone number?
Assume that your telephone number is 7-digits.

Answer
1 in 10,000,000
There are 10 digits i.e. 0-9. First digit can be dialed in 10 ways. Second digit can be dialed in 10 ways. Third digit can be dialed in 10 ways. And so on.....

Thus, 7-digit can be dialed in 10*10*10*10*10*10*10 (=10,000,000) ways. And, you have just one telephone number. Hence, the possibility that you will dial your own number is 1 in 10,000,000.

Note that 0123456 may not be a valid 7-digit telephone number. But while dialing in random order, that is one of the possible 7-digit number which you may dial.
An anthropologist discovers an isolated tribe whose written alphabet contains only six letters (call the letters A, B, C, D, E and F). The tribe has a taboo against using the same letter twice in the same word. It's never done.

If each different sequence of letters constitues a different word in the language, what is

the maximum number of six-letter words that the language can employ?

Answer
The language can employ maximum of 720 six-letter words.

It is a simple permutation problem of arranging 6 letters to get different six-letter words. And it can be done in in 6! ways i.e. 720 ways.

In otherwords, the first letter can be any of the given 6 letters (A through F). Then, whatever the first letter is, the second letter will always be from the remaining 5 letters (as same letter can not be used twice), and the third letter always be from the remaining 4 letters, and so on. Thus, the different possible six-letter words are 6*5*4*3*2*1 = 720

Kate, Demi, Madona, Sharon, Britney and Nicole decided to lunch together in a restaurant. The waiter led them to a round table with six chairs.
How many different ways can they seat?

Answer
There are 120 different possible seating arrangments.

Note that on a round table ABCDEF and BCDEFA is the same.

The first person can sit on any one of the seats. Now, for the second person there are 5 options, for the third person there are 4 options, for the forth person there are 3 options, for the fifth person there are 2 options and for the last person there is just one option.

Thus, total different possible seating arrangements are
= 5 * 4 * 3 * 2 * 1
= 120

3 blocks are chosen randomly on a chessboard. What is the probability that they are in the same diagonal?

Answer
There are total of 64 blocks on a chessboard. So 3 blocks can be chosen out of 64 in $^{64}C_3$ ways.
So the sample space is = 41664

There are 2 diagonal on chessboard each one having 8 blocks. Consider one of them.
3 blocks out of 8 blocks in diagonal can be chosen in $^{8}C_3$ ways.
But there are 2 such diagonals, hence favourables = 2 * $^{8}C_3$ = 2 * 56 = 112

The require probability is
= 112 / 41664
= 1 / 372
= 0.002688

What is the area of the triangle ABC with A(e,p) B(2e,3p) and C(3e,5p)?
where p = PI (3.141592654)

Answer
A tricky ONE.
Given 3 points are colinear. Hence, it is a straight line.
Hence area of triangle is 0.

Silu and Meenu were walking on the road.
Silu said, "I weigh 51 Kgs. How much do you weigh?"
Meenu replied that she wouldn't reveal her weight directly as she is overweight. But she said, "I weigh 29 Kgs plus half of my weight."
How much does Meenu weigh?

Answer
Meenu weighs 58 Kgs.

It is given that Meenu weighs 29 Kgs plus half of her own weight. It means that 29 Kgs is the other half. So she weighs 58 Kgs.

Solving mathematically, let's assume that her weight is X Kgs.
X = 29 + X/2
2*X = 58 + X
X = 58 Kgs
Consider the sum: ABC + DEF + GHI = J J J

If different letters represent different digits, and there are no leading zeros, what does J represent?

Answer
The value of J must be 9.

Since there are no leading zeros, J must be 7, 8, or 9. (J J J = ABC + DEF + GHI = 14? + 25? + 36? = 7??)

Now, the remainder left after dividing any number by 9 is the same as the remainder left after dividing the sum of the digits of that number by 9. Also, note that 0 + 1 + ... + 9 has a remainder of 0 after dividing by 9 and J J J has a remainder of 0, 3, or 6.

The number 9 is the only number from 7, 8 and 9 that leaves a remainder of 0, 3, or 6 if you remove it from the sum 0 + 1 + ... + 9. Hence, it follows that J must be 9.
A man has Ten Horses and nine stables as shown here.
[] [] [] [] [] [] [] [] []
The man wants to fit Ten Horses into nine stables. How can he fit Ten horses into nine stables?

Answer
The answer is simple. It says the man wants to fit "Ten Horses" into nine stables. There are nine letters in the phrase "Ten Horses". So you can put one letter each in all nine stables.
[T] [E] [N] [H] [O] [R] [S] [E] [S]

A man is at a river with a 9 gallon bucket and a 4 gallon bucket. He needs exactly 6 gallons of water. How can he use both buckets to get exactly 6 gallons of water?
Note that he cannot estimate by dumping some of the water out of the 9 gallon bucket or the 4 gallon bucket

Answer
For the sack of explanation, let's identify 4 gallon bucket as Bucket P and 9 gallon bucket as Bucket Q.

Operation	4 gallon bucket (Bucket P)	9 gallon bucket (Bucket Q)
Initially	0	0
Fill the bucket Q with 9 gallon water	0	9
Pour 4 gallon water from bucket Q to bucket P	4	5
Empty bucket P	0	5
Pour 4 gallon water from bucket Q to bucket P	4	1
Empty bucket P	0	1
Pour 1 gallon water from bucket Q to bucket P	1	0
Fill the bucket Q with 9 gallon water	1	9
Pour 3 gallon water from bucket Q to bucket P	4	6

9 gallon bucket contains 6 gallon of water, as required.

Each of the five characters in the word BRAIN has a different value between 0 and 9. Using the given grid, can you find out the value of each character?

B	R	A	I	N	31
B	B	R	B	A	31
N	I	A	B	B	32
N	I	B	A	I	30
I	R	A	A	A	23
37	29	25	27	29	

The numbers on the extreme right represent the sum of the values represented by the characters in that row. Also, the numbers on the last raw represent the sum of the values represented by the characters in that column. e.g. B + R + A + I + N = 31 (from first row)

Answer
B=7, R=6, A=4, I=5 and N=9

Make total 10 equations - 5 for rows and 5 for columns - and sovle them.

From Row3 and Row4,
N + I + A + B + B = N + I + B + A + I + 2
B = I + 2

From Row1 and Row3,
B + R + A + I + N = N + I + A + B + B - 1
R = B - 1

From Column2,
R + B + I + I + R = 29
B + 2R + 2I = 29
B + 2(B - 1) + 2I = 29
3B + 2I = 31
3(I + 2) + 2I = 31
5I = 25
I = 5

Hence, B=7 and R=6

From Row2,
B + B + R + B + A = 31
3B + R + A = 31
3(7) + 6 + A = 31
A = 4

From Row1,
B + R + A + I + N = 31
7 + 6 + 4 + 5 + N = 31
N = 9

Thus, B=7, R=6, A=4, I=5 and N=9
There are 9 coins. Out of which one is odd one i.e weight is less or more. How many iterations of weighing are required to find odd coin?

Answer
It is always possible to find odd coin in 3 weighings and to tell whether the odd coin is heavier or lighter.
Take 8 coins and weigh 4 against 4.
If both are not equal, goto step 2
If both are equal, goto step 3

One of these 8 coins is the odd one. Name the coins on heavier side of the scale as H1, H2, H3 and H4. Similarly, name the coins on the lighter side of the scale as L1, L2, L3 and L4. Either one of H's is heavier or one of L's is lighter. Weigh (H1, H2, L1) against (H3, H4, X) where X is one coin remaining in intial weighing.
If both are equal, one of L2, L3, L4 is lighter. Weigh L2 against L3.
If both are equal, L4 is the odd coin and is lighter.
If L2 is light, L2 is the odd coin and is lighter.
If L3 is light, L3 is the odd coin and is lighter.

If (H1, H2, L1) is heavier side on the scale, either H1 or H2 is heavier. Weight H1 against H2
If both are equal, there is some error.
If H1 is heavy, H1 is the odd coin and is heavier.
If H2 is heavy, H2 is the odd coin and is heavier.

If (H3, H4, X) is heavier side on the scale, either H3 or H4 is heavier or L1 is lighter. Weight H3 against H4

If both are equal, L1 is the odd coin and is lighter.
If H3 is heavy, H3 is the odd coin and is heavier.
If H4 is heavy, H4 is the odd coin and is heavier.

The remaining coin X is the odd one. Weigh X against the anyone coin used in initial weighing.
If both are equal, there is some error.
If X is heavy, X is the odd coin and is heavier.
If X is light, X is the odd coin and is lighter.

In a sports contest there were m medals awarded on n successive days (n > 1).
On the first day 1 medal and 1/7 of the remaining m - 1 medals were awarded.
On the second day 2 medals and 1/7 of the now remaining medals was awarded; and so on.
On the n^{th} and last day, the remaining n medals were awarded.
How many days did the contest last, and how many medals were awarded altogether?

Answer
Total 36 medals were awarded and the contest was for 6 days.

On day 1: Medals awarded = (1 + 35/7) = 6 : Remaining 30 medals
On day 2: Medals awarded = (2 + 28/7) = 6 : Remaining 24 medals
On day 3: Medals awarded = (3 + 21/7) = 6 : Remaining 18 medals
On day 4: Medals awarded = (4 + 14/7) = 6 : Remaining 12 medals
On day 5: Medals awarded = (5 +7/7) = 6 : Remaining 6 medals
On day 6: Medals awarded 6

I got this answer by writing small program. If anyone know any other simpler method, do submit it. A number of 9 digits has the following properties:
The number comprising the leftmost two digits is divisible by 2, that comprising the leftmost three digits is divisible by 3, the leftmost four by 4, the leftmost five by 5, and so on for the nine digits of the number i.e. the number formed from the first n digits is divisible by n, 2<=n<=9. Each digit in the number is different i.e. no digits are repeated. The digit 0 does not occur in the number i.e. it is comprised only of the digits 1-9 in some order.
Find the number.
Answer
The answer is 381654729

One way to solve it is Trial-&-Error. You can make it bit easier as odd positions will always occupy ODD numbers and even positions will always occupy EVEN numbers. Further 5th position will contain 5 as 0 does not occur.

The other way to solve this problem is by writing a computer program that systematically tries all possibilities.

1/3 rd of the contents of a container evaporated on the 1st day. 3/4th of the remaining contents of the container evaporated on the second day.
What part of the contents of the container is left at the end of the second day?

Answer
Assume that contents of the container is X

On the first day 1/3rd is evaporated.
(1 - 1/3) of X is remaining i.e. (2/3)X

On the Second day 3/4th is evaporated. Hence,
(1- 3/4) of (2/3)X is remaining
i.e. (1/4)(2/3)X = (1/6) X

Hence 1/6th of the contents of the container is remaining

There are four people in a room (not including you). Exactly two of these four always tell the truth. The other two always lie.

You have to figure out who is who IN ONLY 2 QUESTIONS. Your questions have to be YES or NO questions and can only be answered by one person. (If you ask the same question to two different people then that counts as two questions). Keep in mind that all four know each other's characteristics whether they lie or not.

What questions would you ask to figure out who is who? Remember that you can ask only 2 questions. You have 3 baskets, & each one contains exactly 4 balls, each of which is of the same size. Each ball is either red, black, white, or purple, & there is one of each color in each basket. If you were blindfolded, & lightly shook each basket so that the balls would be randomly distributed, & then took 1 ball from each basket, what chance is there that you would have exactly 2 red balls?

Answer
There are 64 different possible outcomes, & in 9 of these, exactly 2 of the balls will be red. There is thus a slightly better than 14% chance [(9/64)*100] that exactly 2 balls will be red.

A much faster way to solve the problem is to look at it this way. There are 3 scenarios where exactly 3 balls are red:

1 2 3

R R X

R X R

X R R

X is any ball that is not red.
There is a 4.6875% chance that each of these situations will occur.

Take the first one, for example: 25% chance the first ball is red, multiplied by a 25% chance the second ball is red, multiplied by a 75% chance the third ball is not red.

Because there are 3 scenarios where this outcome occurs, you multiply the 4.6875% chance of any one occurring by 3, & you get 14.0625%

Consider a state lottery where you get to choose 8 numbers from 1 to 80, no repetiton allowed. The Lottery Commission chooses 11 from those 80 numbers, again no repetition. You win the lottery if atleast 7 of your numbers are there in the 11 chosen by the Lottery Commission.
What is the probablity of winning the lottery?

Answer
The probability of winning the lottery is two in one billion i.e. only two person can win from one billion !!!

Let's find out sample space first. The Lottery Commission chooses 11 numbers from the 80. Hence, the 11 numbers from the 80 can be selected in $^{80}C_{11}$ ways which is very very high and is equal to $1.04776 * 10^{13}$

Now, you have to select 8 numbers from 80 which can be selected in 80C8 ways. But we are interested in only those numbers which are in 11 numbers selected by the Lottery Commision. There are 2 cases.
You might select 8 numbers which all are there in 11 numbers choosen by the Lottery Commission. So there are $^{11}C_8$ ways.
Another case is you might select 7 lucky numbers and 1 non-lucky number from the remaining 69 numbers. There are ($^{11}C_7$) * ($^{69}C_1$) ways to do that.
So total lucky ways are
= ($^{11}C_8$) + ($^{11}C_7$) * ($^{69}C_1$)
= (165) + (330) * (69)
= 165 + 22770
= 22935

Hence, the probability of the winning lottery is
= (Total lucky ways) / (Total Sample space)
= (22935) / ($1.04776 * 10^{13}$)
= $2.1889 * 10^{-9}$
i.e. 2 in a billion.
To move a Safe, two cylindrical steel bars 7 inches in diameter are used as rollers. How far will the safe have moved forward when the rollers have made one revolution?

Answer
The safe must have moved 22 inches forward.

If the rollers make one revolution, the safe will move the distance equal to the circumference of the roller. Hence, the distance covered by the safe is
= PI * Diameter (or 2 * PI * Radius)
= PI * 7
= 3.14159265 * 7
= 21.99115
= 22 inches approx.

If a rook and a bishop of a standard chess set are randomly placed on a chessboard, what is the probability that one is attacking the other? Note that both are different colored pieces.

Answer
The probability of either the Rook or the Bishop attacking the other is 0.3611

A Rook and a Bishop on a standard chess-board can be arranged in ${}^{64}P_2 = 64*63 = 4032$ ways

Now, there are 2 cases - Rook attacking Bishop and Bishop attacking Rook. Note that the Rook and the Bishop never attack each other simultaneously. Let's consider both the cases one by one.

Case I - Rook attacking Bishop
The Rook can be placed in any of the given 64 positions and it always attacks 14 positions. Hence, total possible ways of the Rook attacking the Bishop = 64*14 = 896 ways

Case II - Bishop attacking Rook
View the chess-board as a 4 co-centric hollow squares with the outermost square with side 8 units and the innermost square with side 2 units.

If the bishop is in one of the outer 28 squares, then it can attack 7 positions. If the bishop is in one of the 20 squares at next inner-level, then it can attack 9 positions. Similarly if the bishop is in one of the 12 squares at next inner-level, then it can attack 11 positions. And if the bishop is in one of the 4 squares at next inner-level (the innermost level), then it can attack 13 positions.

Hence, total possible ways of the Bishop attacking the Rook
= 28*7 + 20*9 + 12*11 + 4*13
= 560 ways

Thus, the required probability is
= (896 + 560) / 4032
= 13/36
= 0.3611
Here in England McDonald's has just launched a new advertising campaign. The poster shows 8 McDonald's products and underneath claims there are 40312 combinations of the above items.

Given that the maximum number of items allowed is 8, and you are allowed to have less than 8 items, and that the order of purchase does not matter (i.e. buying a burger and fries is the same as buying fries and a burger) How many possible combinations are there? Are McDonald's correct in claiming there are 40312 combinations?

Answer
Total possible combinations are 12869.

It is given that you can order maximum of 8 items and you are allowed to have less than 8 items.

Also, the order of purchase does not matter. Let's create a table for ordering total N items using X products.

Items Ordered (N)	Products Used (X)							
	1	2	3	4	5	6	7	8
1	1	-	-	-	-	-	-	-
2	1	1	-	-	-	-	-	-
3	1	2	1	-	-	-	-	-
4	1	3	3	1	-	-	-	-
5	1	4	6	4	1	-	-	-
6	1	5	10	10	5	1	-	-
7	1	6	15	20	15	6	1	-
8	1	7	21	35	35	21	7	1
Total (T)	8	28	56	70	56	28	8	1
Ways to choose X products from 8 products (W)	8C1	8C2	8C3	8C4	8C5	8C6	8C7	8C8
Total combinations (T*W)	64	784	3136	4900	3136	784	64	1

Thus, total possible combinations are
= 64 + 784 + 3136 + 4900 + 3136 + 784 + 64 + 1
= 12869

What are the chances that at least two out of a group of fifty people share the same birthday?

Answer
The probability of atleast two out of a group of 50 people share the same birthday is 97%
Probability of atleast two share the same birthday = 1 - probability of all 50 have different birthdays

Probability of all 50 have different birthday
= 365/365 * 364/365 * 363/365 * ... * 317/365 * 316/365
= (365 * 364 * 363 * 362 * ... * 317 * 316)/365^{50}
= 0.0296264

Probability of atleast two share the same birthday
= 1 - 0.0296264
= 0.9703735
= 97% approx.

Thus, the probability of atleast two out of a group of 50 people share the same birthday is 97%

This explains why in a school/college with classrooms of 50 students, there are at least two students with a birthday on the same day of the year. Also, if there are 23 people in the

room, then there are 50% chances that atleast two of them have a birthday on the same day of the year!!!

A tank can be filled by pipe A in 30 minutes and by pipe B in 24 minutes. Outlet pipe C can empty the full tank in X minutes. If the tank is empty initially and if all the three pipes A, B and C are opened simultaneously, the tank will NEVER be full. Give the maximal possible value of X.

Answer
The maximum possible value of X is 13 minutes 20 seconds.

In one minute,
pipe A can fill 1/30 part of the tank.
pipe B can fill 1/24 part of the tank.

Thus, the net water level increase in one minute is
= 1/30 + 1/24
= 3/40 part of the tank

In order to keep the tank always empty, outlet pipe C should empty at least 3/40 part of the tank in one minute. Thus, pipe C can empty the full tank in 40/3 i.e. 13 minutes 20 seconds. A worker earns a 5% raise. A year later, the worker receives a 2.5% cut in pay, & now his salary is Rs. 22702.68 What was his salary to begin with?

Answer
Rs.22176

Assume his salary was Rs. X
He earns 5% raise. So his salary is (105*X)/100
A year later he receives 2.5% cut. So his salary is ((105*X)/100)*(97.5/100) which is Rs. 22702.68

Hence, solving equation ((105*X)/100)*(97.5/100) = 22702.68
X = 22176

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 come out. And the shortest among them is A. Similarly after resuming them to their original positions, the shortest among each column are asked to come out. And the tallest among them is B.
Now who is taller A or B ?

A person wanted to withdraw X rupees and Y paise from the bank. But cashier made a mistake and gave him Y rupees and X paise. Neither the person nor the cashier noticed that. After spending 20 paise, the person counts the money. And to his surprise, he has double the amount he wanted to withdraw.
Find X and Y. (1 Rupee = 100 Paise)

As given, the person wanted to withdraw 100X + Y paise.
But he got 100Y + X paise.

After spending 20 paise, he has double the amount he wanted to withdraw. Hence, the equation is

2 * (100X + Y) = 100Y + X - 20
200X + 2Y = 100Y +X - 20
199X - 98Y = -20
98Y - 199X = 20

Now, we got one equation; but there are 2 variables. We have to apply little bit of logic over here. We know that if we interchange X & Y, amount gets double. So Y should be twice of X or one more than twice of X i.e. Y = 2X or Y = 2X+1

Case I : Y=2X
Solving two equations simultaneously
98Y - 199X = 20
Y - 2X = 0
We get X = - 20/3 & Y = - 40/2

Case II : Y=2X+1
Solving two equations simultaneously
98Y - 199X = 20
Y - 2X = 1
We get X = 26 & Y = 53
Now, its obvious that he wanted to withdraw Rs. 26.53
At the Party:
There were 9 men and children.
There were 2 more women than children.
The number of different man-woman couples possible was 24. Note that if there were 7 men and 5 women, then there would have been 35 man-woman couples possible.
Also, of the three groups - men, women and children - at the party:
There were 4 of one group.
There were 6 of one group.
There were 8 of one group.
Exactly one of the above 6 statements is false.
Can you tell which one is false? Also, how many men, women and children are there at the party?

Answer
Statement (4) is false. There are 3 men, 8 women and 6 children.

Assume that Statements (4), (5) and (6) are all true. Then, Statement (1) is false. But then Statement (2) and (3) both can not be true. Thus, contradictory to the fact that exactly one statement is false.

So Statement (4) or Statement (5) or Statement (6) is false. Also, Statements (1), (2) and (3) all are true.

From (1) and (2), there are 11 men and women. Then from (3), there are 2 possible cases - either there are 8 men and 3 women or there are 3 men and 8 women.

If there are 8 men and 3 women, then there is 1 child. Then Statements (4) and (5) both are false, which is not possible.

Hence, there are 3 men, 8 women and 6 children. Statement (4) is false.

There is a shortage of tubelights, bulbs and fans in a village - Kharghar. It is found that
All houses do not have either tubelight or bulb or fan.
exactly 19% of houses do not have just one of these.
atleast 67% of houses do not have tubelights.
atleast 83% of houses do not have bulbs.
atleast 73% of houses do not have fans.
What percentage of houses do not have tubelight, bulb and fan?

Answer
42% houses do not have tubelight, bulb and fan.

Let's assume that there are 100 houses. Hence, there should be total 300 items i.e. 100 tubelights, 100 bulbs and 100 fans.

From the given data, we know that there is shortage of atleast (67+83+73) 223 items in every 100 houses.

Also, exactly 19 houses do not have just one item. It means that remaining 81 houses should account for the shortage of remaining (223-19) 204 items. If those remaining 81 houses do not have 2 items each, there would be a shortage of 162 items. But total of 204 items are short. Hence, atleast (204-162) 42 houses do not have all 3 items - tubelight, bulb and fan.

Thus, 42% houses do not have tubelight, bulb and fan.

What is the remainder left after dividing 1! + 2! + 3! + ... + 100! By 7?

Answer
A tricky one.

7! onwards all terms are divisible by 7 as 7 is one of the factor. So there is no remainder left for those terms i.e. remainder left after dividing 7! + 8! + 9! + ... + 100! is 0.

The only part to be consider is
= 1! + 2! + 3! + 4! + 5! + 6!
= 1 + 2 + 6 + 24 + 120 + 720
= 873

The remainder left after dividing 873 by 7 is 5

Hence, the remainder is 5.

Imagine that you have 26 constants, labelled A through Z. Each constant is assigned a value in the following way: A = 1; the rest of the values equal their position in the

alphabet (B corresponds to the second position so it equals 2, C = 3, etc.) raised to the power of the preceeding constant value. So, B = 2 ^ (A's value), or B = 2^1 = 2. C = 3^2 = 9. D = 4^9, etc.
Find the exact numerical value to the following equation: (X - A) * (X - B) * (X - C) * ... * (X - Y) * (X - Z)

Answer
(X - A) * (X - B) * (X - C) * ... * (X - Y) * (X - Z) equals 0 since (X - X) is zero

If three babies are born every second of the day, then how many babies will be born in the year 2001?

Answer
9,46,08,000 babies

The total seconds in year 2001
= 365 days/year * 24 hours/day * 60 minutes/hours * 60 seconds/minute
= 365 * 24 * 60 * 60 seconds
= 3,15,36,000 seconds

Thus, there are 3,15,36,000 seconds in the year 2001. Also, three babies born are every second. Hence, total babies born
= 3 * 3,15,36,000 seconds
= 9,46,08,000*bmitted*

Replace the letters with the correct numbers.

```
   T W O
 X  T W O
 ---------
 T H R E E
```

Answer
T=1, W=3, O=8, H=9, R=2, E=4

```
    1 3 8
 x  1 3 8
------------
 1 9 0 4 4
```

You can reduce the number of trials. T must be 1 as there is multiplication of T with T in hundred's position. Also, O can not be 0 or 1. Now, you have to find three digit number whose square satisfies above conditions and square of that has same last two digits. Hence, it must be between 102 and 139.

Four words add up to a fifth word numerically:

```
     mars
    venus
   uranus
   saturn
```

-------- +
neptune

Each of the ten letters (m, a, r, s, v, e, n, u, t, and p) represent a unique number from the range 0 .. 9.
Furthermore, numbers 1 and 6 are being used most frequently.

Answer
The easiest way to solve this problem is by writing a computer program that systematically tries all possible mappings from the numbers onto the letters. This will give you only one solution which meets the condition that numbers 1 and 6 are most frequently used.

```
  mars      m = 4
 venus      a = 5
uranus      r = 9
saturn      s = 3
-------- +  v = 2        4593
neptune     e = 0       20163
            n = 1      695163
            u = 6      358691
            t = 8    -------- +
            p = 7    1078610
```

There are 4 army men. They have been captured by a rebel group and have been held at ransom. An army intelligent officer orders them to be burried deep in dirt up to their necks. The format of their burrial are as shown in the figure.

Conditions
They each have hats on their heads. either black(b) or white (w) look at diagram above. There are total 2 white hats and 2 black hats.
They only look in front of them not behind. They are not allowed to communicate by talking.
Between army man 1 and 2, there is a wall.
Captive man 4 can see the colour of hats on 2 and 3
3 can only see 2's hat
2 can only see a wall and 1 can see a wall too, but is on the other side
The officer speaks up, "If one of you can correctly tell me the colour of your hat, you will all go scott free back to your contries. If you are wrong, you will all be killed.
How can one of them be certain about the hat they are wearing and not risk the lives of their fellow souldiers by taking a 50/50 guess!

Answer
Either soldier 3 or soldier 4 can save the life as soldier 1 and soldier 2 can not see colour of any hat, even not their own.. In our case soldier 3 will tell the colour of his hat.

Soldier 4 can see the hat on soldier 2 and soldier 3. If both are white, then he can be sure about colour of his hat which will be black and vice-versa. But if one of them is white and one is black, then soldier 4 can not say anything as he can have either of them. So he will keep mum.

If soldier 4 won't say anyhing for a while, then soldier 3 will know that soldier 4 is not in

position to tell the colour of hat on his hat. It means that colour of soldier 3's hat is opposite of colour of soldier 2's hat. So soldier 3 can tell correctly the colour of hat on his head which is Black.

Here, we are assuming that all the soldiers are intelligent enough. Also, this solution will work for any combination of 2 Black hats and 2 White hats.

One side of the bottom layer of a triangular pyramid has 12 balls. How many are there in the whole pyramid? Note that the pyramid is equilateral and solid.

Answer
There are total 364 balls.

As there are 12 balls along one side, it means that there are 12 layers of balls. The top most layer has 1 ball. The second layer has 3 (1+2) balls. The third layer has 6 (1+2+3) balls. The fourth layer has 10 (1+2+3+4) balls. The fifth layer has 15 (1+2+3+4+5) balls. Similarly, there are 21, 28, 36, 45, 55, 66 and 78 balls in the remaining layers.

Hence, the total number of balls are
= 1 + 3 + 6 + 10 + 15 + 21 + 28 + 36 + 45 + 55 + 66 + 78
= 364 balls

A blindfolded man is asked to sit in the front of a carrom board. The holes of the board are shut with lids in random order, i.e. any number of all the four holes can be shut or open.

Now the man is supposed to touch any two holes at a time and can do the following.
Open the closed hole.
Close the open hole.
Let the hole be as it is.
After he has done it, the carrom board is rotated and again brought to some position. The man is again not aware of what are the holes which are open or closed.

How many minimum number of turns does the blindfolded man require to either open all the holes or close all the holes? Note that whenever all the holes are either open or close, there will be an alarm so that the blindfolded man will know that he has won.

Answer
The blindfolded man requires 5 turns.
Open two adjacent holes.
Open two diagonal holes. Now atleast 3 holes are open. If 4th hole is also open, then you are done. If not, the 4th hole is close.
Check two diagonal holes.
If one is close, open it and all the holes are open.
If both are close, open any one hole. Now, two holes are open and two are close. The diagonal holes are in the opposite status i.e. in both the diagonals, one hole is open and one is close.

Check any two adjacent holes.
If both are open, close both of them. Now, all holes are close.
If both are close, open both of them. Now, all holes are open.

If one is open and one is close, invert them i.e. close the open hole and open the close hole. Now, the diagonal holes are in the same status i.e. two holes in one diagonal are open and in other are close.

Check any two diagonal holes.
If both are open, close both of them. Now, all holes are close.
If both are close, open both of them. Now, all holes are open.

In the middle of the confounded desert, there is the lost city of "Ash". To reach it, I will have to travel overland by foot from the coast. On a trek like this, each person can only carry enough rations for five days and the farthest we can travel in one day is 30 miles. Also, the city is 120 miles from the starting point.
What I am trying to figure out is the fewest number of persons, including myself, that I will need in our Group so that I can reach the city, stay overnight, and then return to the coast without running out of supplies.
How many persons (including myself) will I need to accomplish this mission?

Answer
Total 4 persons (including you) required.

It is given that each person can only carry enough rations for five days. And there are 4 persons. Hence, total of 20 days rations is available.
First Day : 4 days of rations are used up. One person goes back using one day of rations for the return trip. The rations remaining for the further trek is for 15 days.
Second Day : The remaining three people use up 3 days of rations. One person goes back using 2 days of rations for the return trip. The rations remaining for the further trek is for 10 days.
Third Day : The remaining two people use up 2 days of rations. One person goes back using 3 days of rations for the return trip. The rations remaining for the further trek is for 5 days.
Fourth Day : The remaining person uses up one day of rations. He stays overnight. The next day he returns to the coast using 4 days of rations.

Thus, total 4 persons, including you are required.

At what time after 4.00 p.m. is the minutes hand of a clock exactly aligned with the hour hand?
Answer
4:21:49.5

Assume that X minutes after 4.00 PM minute hand exactly aligns with and hour hand.

For every minute, minute hand travels 6 degrees.
Hence, for X minutes it will travel 6 * X degrees.

For every minute, hour hand travels 1/2 degrees.
Hence, for X minutes it will travel X/2 degrees.

At 4.00 PM, the angle between minute hand and hour hand is 120 degrees. Also, after X minutes, minute hand and hour hand are exactly aligned. So the angle with respect to 12 i.e. Vertical Plane will be same. Therefore,

6 * X = 120 + X/2
12 * X = 240 + X
11 * X = 240
X = 21.8182
X = 21 minutes 49.5 seconds

Hence, at 4:21:49.5 minute hand is exactly aligned with the hour hand.

Substitute digits for the letters to make the following Division true

```
          O U T
       -------------
S T E M | D E M I S E
        | D M O C
       -------------
          T U I S
          S T E M
         ----------
           Z Z Z E
           Z U M M
          --------
            I S T
```

Note that the leftmost letter can't be zero in any word. Also, there must be a one-to-one mapping between digits and letters. e.g. if you substitute 3 for the letter M, no other letter can be 3 and all other M in the puzzle must be 3.

Answer
C=0, U=1, S=2, T=3, O=4, M=5, I=6, Z=7, E=8, D=9

It is obvious that U=1 (as U*STEM=STEM) and C=0 (as I-C=I).

S*O is a single digit and also S*T is a single digit. Hence, their values (O, S, T) must be 2, 3 or 4 (as they can not be 0 or 1 or greater than 4).

Consider, STEM*O=DMOC, where C=0. It means that M must be 5. Now, its simple. O=4, S=2, T=3, E=8, Z=7, I=6 and D=9.

```
          O U T              4 1 3
       -------------      -------------
S T E M | D E M I S E    2 3 8 5 | 9 8 5 6 2 8
        | D M O C          | 9 5 4 0
       -------------      -------------
          T U I S            3 1 6 2
          S T E M            2 3 8 5
         ----------         ----------
           Z Z Z E            7 7 7 8
           Z U M M            7 1 5 5
          --------           --------
            I S T              6 2 3
```

Also, when arranged from 0 to 9, it spells CUSTOMIZED.

In the town called Alibaug, the following facts are true:
No two inhabitants have exactly the same number of hairs.
No inhabitants has exactly 2025 hairs.
There are more inhabitants than there are hairs on the head of any one inhabitants.
What is the largest possible number of the inhabitants of Alibaug?

Answer
2025

It is given that no inhabitants have exactly 2025 hairs. Hence there are 2025 inhabitants with 0 to 2024 hairs in the head.

Suppose there are more than 2025 inhabitants. But these will violate the condition that "There are more inhabitants than there are hairs on the head of any one inhabitants." As for any number more than 2025, there will be same number of inhabitants as the maximum number of hairs on the head of any inhabitant.

There are four groups of Mangoes, Apples and Bananas as follows:
Group I : 1 Mango, 1 Apples and 1 Banana
Group II : 1 Mango, 5 Apples and 7 Bananas
Group III : 1 Mango, 7 Apples and 10 Bananas
Group IV : 9 Mango, 23 Apples and 30 Bananas
Group II costs Rs 300 and Group III costs Rs 390.
Can you tell how much does Group I and Group IV cost?

Answer

Group I costs Rs 120 and Group IV costs Rs 1710

Assume that the values of one mango, one apple and one banana are M, A and B respectively.

From Group II : M + 5A + 7B = 300
From Group III : M + 7A + 10B = 390

Subtracting above to equations : 2A + 3B = 90

For Group I :
= M + A + B
= (M + 5A + 7B) - (4A + 6B)
= (M + 5A + 7B) - 2(2A + 3B)
= 300 - 2(90)
= 300 - 180
= 120

Similarly, for Group IV :
= 9M + 23A + 30B
= 9(M + 5A + 7B) - (22A + 33B)

= 9(M + 5A + 7B) - 11(2A + 3B)
= 9(300) - 11(90)
= 2700 - 990
= 1710

Thus, Group I costs Rs 120 and Group IV costs Rs 1710.

Tic-Tac-Toe is being played. One 'X' has been placed in one of the corners. No 'O' has been placed yet. Where does the player that is playing 'O' has to put his first 'O' so that 'X' doesn't win? Assume that both players are very intelligent. Explain your answer

Answer
"O" should be placed in the center.

Let's number the positions as:

```
1 | 2 | 3
---------
4 | 5 | 6
---------
7 | 8 | 9
```

It is given that "X" is placed in one of the corner position. Let's assume that its at position 1.
Now, let's take each position one by one.
If "O" is placed in position 2, "X" can always win by choosing position 4, 5 or 7.
If "O" is placed in position 3, "X" can always win by choosing position 4, 7 or 9.
If "O" is placed in position 4, "X" can always win by choosing position 2, 3 or 5.
If "O" is placed in position 6, "X" can always win by choosing position 3, 5 or 7.
If "O" is placed in position 7, "X" can always win by choosing position 2, 3 or 9.
If "O" is placed in position 8, "X" can always win by choosing position 3, 5 or 7.
If "O" is placed in position 9, "X" can always win by choosing position 3, or 7.
If "O" is placed in position 5 i.e. center position, "X" can't win unless "O" does something foolish ;))

Hence, "O" should be placed in the center.

Amit, Bhavin, Himanshu and Rakesh are sitting around a table.
The Electonics Engineer is sitting to the left of the Mechanical Engineer.
Amit is sitting opposite to Computer Engineer.
Himanshu likes to play Computer Games.
Bhavin is sitting to the right of the Chemical Engineer.
Can you figure out everyone's profession?

Answer
Amit is the Mechanical Engineer. Bhavin is the Computer Engineer. Himanshu and Rakesh are either Chemical Engineer or Elecronics Engineer.

Amit and Bhavin are sitting opposite to each other. Whereas Chemical Engineer and Elecronics Engineer are sitting opposite to each other.

We cannot find out who is Chemical Engineer and Elecronics Engineer as data provided is not sufficient

Five friends with surname Batliwala, Pocketwala, Talawala, Chunawala and Natakwala have their first name and middle name as follow.
Four of them have a first and middle name of Paresh.
Three of them have a first and middle name of Kamlesh.
Two of them have a first and middle name of Naresh.
One of them have a first and middle name of Elesh.
Pocketwala and Talawala, either both are named Kamlesh or neither is named Kamlesh.
Either Batliwala and Pocketwala both are named Naresh or Talawala and Chunawala both are named Naresh.
Chunawala and Natakwala are not both named Paresh.
Who is named Elesh?

Answer
Pocketwala is named Elesh.

From (1) and (7), it is clear that Batliwala, Pocketwala and Talawala are named Paresh.

From (6) and (5), if Pocketwala or Talawala both are named Kamlesh, then either of them will have three names i.e. Paresh, Kamlesh and Naresh. Hence, Pocketwala and Talawala both are not named Kamlesh. It means that Batliwala, Chunawala and Natakwala are named Kamlesh.

Now it is clear that Talawala and Chunawala are named Naresh. Also, Pocketwala is named Elesh.

Mr. Wagle goes to work by a bus. One day he falls asleep when the bus still has twice as far to go as it has already gone. Halfway through the trip he wakes up as the bus bounces over some bad potholes. When he finally falls asleep again, the bus still has half the distance to go that it has already travelled. Fortunately, Mr. Wagle wakes up at the end of his trip.
What portion of the total trip did Mr. Wagle sleep?

Answer
Mr. wagle slept through half his trip.

Let's draw a timeline. Picture the bus route on a line showen below:

---------- _____ ------- _____

Start 1/3 1/2 2/3 End

----- shows time for which Mr. Wagle was not sleeping
_____ shows time for which Mr. Wagle was sleeping

When Mr. Wagle fell asleep the first time, the bus sill had twice as far to go as it had already gone, that marks the first third of his trip.

He wake up halfway through the trip i.e slept from 1/3 mark to the 1/2 mark. He fell sleep again

when the bus still had half the distance to go that it had already traveled i.e 2/3 mark.

Adding up, all sleeping times,
= (1/2 - 1/3) + (1 - 2/3)
= 1/6 + 1/3
= 1/2

Hence, Mr. wagle slept through half his trip.

In your sock drawer, you have a ratio of 5 pairs of blue socks, 4 pairs of brown socks, and 6 pairs of black socks. In complete darkness, how many socks would you need to pull out to get a matching pair of the same color?

4 If you don't agree, try it yourself!
You have a bucket of jelly beans. Some are red, some are blue, and some green. With your eyes closed, pick out 2 of a like color.

How many do you have to grab to be sure you have 2 of the same?
You have a bucket of jelly beans. Some are red, some are blue, and some green. With your eyes closed, pick out 2 of a like color.

How many do you have to grab to be sure you have 2 of the same?
If you select 4 Jelly beans you are guarenteed that you will have 2 that are the same color.

There are 70 employees working with BrainVista of which 30 are females. Also,
30 employees are married
24 employees are above 25 years of age
19 married employees are above 25 years, of which 7 are males
12 males are above 25 years of age
15 males are married.
How many unmarried females are there and how many of them are above 25?

Answer
15 unmarried females & none are above 25 years of age.

Simply put all given information into the table structure and you will get the answer.

	Married		Unmarried	
	Below 25	Above 25	Below 25	Above 25
Female	3	12	15	0
Male	8	7	20	5

There is a safe with a 5 digit number as the key. The 4th digit is 4 greater than the second digit, while the 3rd digit is 3 less than the 2nd digit. The 1st digit is thrice the last digit. There are 3 pairs whose sum is 11. Find the number.

Answer
65292

As per given conditions, there are three possible combinations for 2nd, 3rd and 4th digits. They

are (3, 0, 7) or (4, 1, 8) or (5, 2, 9)

It is given that there are 3 pairs whose sum is 11. All possible pairs are (2, 9), (3, 8), (4, 7), (5, 6). Now required number is 5 digit number and it contains 3 pairs of 11. So it must not be having 0 and 1 in it. Hence, the only possible combination for 2nd, 3rd and 4th digits is (5, 2, 9)

Also, 1st digit is thrice the last digit. The possible combinations are (3, 1), (6, 2) and (9, 3), out of which only (6, 2) with (5, 2, 9) gives 3 pairs of 11. Hence, the answer is 65292.

My friend collects antique stamps. She purchased two, but found that she needed to raise money urgently. So she sold them for Rs. 8000 each. On one she made 20% and on the other she lost 20%. How much did she gain or lose in the entire transaction?

Answer
She lost Rs 666.67

Consider the first stamp. She mades 20% on it after selling it for Rs 8000.

So the original price of first stamp is
= (8000 * 100) / 80
= Rs 6666.67

Similarly, consider second stamp. She lost 20% on it after selling it for Rs 8000

So the original price of second stamp is
= (8000 * 100) / 80
= Rs 10000

Total buying price of two stamps
= Rs 6666.67 + Rs 10000
= Rs 16666.67

Total selling price of two stamps
= Rs 8000 + Rs 8000
= Rs 16000

Hence, she lost Rs 666.67

Assume for a moment that the earth is a perfectly uniform sphere of radius 6400 km. Suppose a thread equal to the length of the circumference of the earth was placed along the equator, and drawn to a tight fit.
Now suppose that the length of the thread is increased by 12 cm, and that it is pulled away uniformly in all directions.
By how many cm. will the thread be separated from the earth's surface?

Answer
The cicumference of the earth is
= 2 * PI * r
= 2 * PI * 6400 km

= 2 * PI * 6400 * 1000 m
= 2 * PI * 6400 * 1000 * 100 cm
= 1280000000 * PI cm

where r = radius of the earth, PI = 3.141592654
Hence, the length of the thread is = 1280000000 * PI cm

Now length of the thread is increasd by 12 cm. So the new length is = (1280000000 * PI) + 12 cm

This thread will make one concentric circle with the earth which is slightly away from the earth. The circumfernce of that circle is nothing but (1280000000 * PI) + 12 cm

Assume that radius of the outer circle is R cm
Therefore,
2 * PI * R = (1280000000 * PI) + 12 cm

Solving above equation, R = 640000001.908 cm
Radius of the earth is r = 640000000 cm

Hence, the thread will be separatedfrom the earth by
= R - r cm
= 640000001.908 - 640000000
= 1.908 cm

Scientist decided to do a study on the population growth of rabbits. Inside a controlled environment, 1000 rabbits were placed.
Six months later, there were 1000Z rabbits. At the beginning of the 3rd year, there were roughly 2828Z rabbits, which was 4 times what the scientists placed in there at the beginning of the 1st year.
If Z is a positive variable, how many rabbits would be there at the beginning of the 11th year?

Answer
At the beginning of the 11th year, there would be 1,024,000 rabbits.

At the beginning, there were 1000 rabbits. Also, there were 4000 rabbits at the beginning of third year which is equal to 2828Z. Thus, Z = 4000/2828 i.e. 1.414 (the square root of 2)

Note that 2828Z can be represented as 2000*Z*Z (Z=1.414), which can be further simplified as 1000*Z*Z*Z*Z

Also, it is given that at the end of 6 months, there were 1000Z rabbits.

It is clear that the population growth is 1.414 times every six months i.e. 2 times every year. After N years, the population would be 1000*(Z^(2N)) i.e. 1000*(2^N)

Thus, at the beginning of the 11th year (i.e. after 10 years), there would be 1000*(2^10) i.e. 1,024,000 rabbits.

A class of 100 students. 24 of them are girls and 32 are not. Which base am I using?

Answer
Let the base be X.

Therefore
(X*X + X*0 + 0) = (2*X +4) + (3*X + 2)
X*X = 5*X + 6
X*X - 5*X -6 = 0
(X-6)(X+1) = 0

Therefore base is 6

A man is stranded on a desert island. All he has to drink is a 20oz bottle of sprite. To conserve his drink he decides that on the first day he will drink one oz and the refill the bottle back up with water. On the 2nd day he will drink 2oz and refill the bottle. On the 3rd day he will drink 3oz and so on...
By the time all the sprite is gone, how much water has he drunk?

Answer
The man drunk 190oz of water.

It is given that the man has 20oz bottle of sprite. Also, he will drink 1oz on the first day and refill the bottle with water, will drink 2oz on the second day and refill the bottle, will drink 3oz on the third day and refill the bottle, and so on till 20th day. Thus at the end of 20 days, he must have drunk (1 + 2 + 3 + 4 + ... +18 + 19 + 20) = 210oz of liquid.

Out of that 210oz, 20oz is the sprite which he had initially. Hence, he must have drunk 190oz of water*ed*

You have four 9's and you may use any of the (+, -, /, *) as many times as you like. I want to see a mathematical expression which uses the four 9's to = 100
How many such expressions can you make?

Answer
There are 5 such expressions.
99 + (9/9) = 100
(99/.99) = 100
(9/.9) * (9/.9) = 100
((9*9) + 9)/.9 = 100
(99-9)/.9 = 100

Two planes take off at the same exact moment. They are flying across the Atlantic. One leaves New York and is flying to Paris at 500 miles per hour. The other leaves Paris and is flying to New York at only 450 miles per hour (because of a strong head wind).

Which one will be closer to Paris when they meet?
They will both be the same distance from Paris when they meet!!!

12 members were present at a board meeting. Each member shook hands with all of the other members before & after the meeting. How many hand shakes were there?

Answer
132

Think of it this way: the first person shakes hands with 11 people, the second person also shakes hands with 11 people, but you only count 10, because the hand shake with the first person was already counted. Then add 9 for the third person, 8 for the fourth, & so on.

66 hand shakes took place before & 66 after the meeting, for a total of 132.
Arrange five planets such that 4 of them add up to 5th planet numerically. Each of the letters of the planet should represent a unique number from the range 0 - 9. You have to use all ten digits. There is an amazing mathematical relationship exists among the names of the planet.

Answer
The tought process is initially to find planets such that the total number of alphabets in them is 10.

The only possible combination of planets is Saturn, Uranus, Venus, Mars and Neptune because for other combinations there will be more than 10 alphabets. Among these five, Neptune is the lenghtiest, so it must be the sum of the other four.

```
  S A T U R N
  U R A N U S
    V E N U S
+     M A R S
 -------------
  N E P T U N E
```

Now the only possible value for N is 1. By finding the value for S, we can reach the result:

```
  3 5 8 6 9 1
  6 9 5 1 6 3
    2 0 1 6 3
+     4 5 9 3
 -------------
  1 0 7 8 6 1 0
```

You have 14 apples. Your Friend Marge takes away 3 and gives you 2. You drop 7 but pick up 4. Bret takes 4 and gives 5. You take one from Marge and give it to Bret in exchange for 3 more. You give those 3 to Marge and she gives you an apple and an orange. Frank comes and takes the apple Marge gave you and gives you a pear. You give the pear to Bret in exchange for an apple. Frank then takes an apple from Marge, gives it to Bret for an orange, gives you the orange for an apple.
How many pears do you have?

Answer
None

Frank gave you a pear in exchange of the apple which Marge gave you. And you gave that pear to Bret in exchange for an apple. All the others exchanges involved apples and/or organges.
Four couples are going to the movie. Each row holds eight seats. Betty and Jim don't want to sit next to Alice and Tom. Alice and Tom don't want to sit next to Gertrude and Bill. On the otherhand, Sally and Bob don't want to sit next to Betty and Jim.

How can the couples arrange themselves in a row so that they all sit where they would like?

Answer
From the given data, it can be inferred that:
(Sally & Bob) NOT (Betty & Jim) NOT (Alice & Tom) NOT (Gertrude & Bill)

(A) NOT (B) means A and B can not seat next to each other.

Now, it is obvious that (Betty & Jim) and (Alice & Tom) will occupy the corner seats as both of them can have only one neighbor. Therefore,
(Gertrude & Bill) will seat next to (Betty & Jim)
(Sally & Bob) will seat next to (Gertrude & Bill)
(Alice & Tom) will seat next to (Sally & Bob)
Thus, there are two possible arrangements - a mirror images of each other.

1. (Betty & Jim) - (Gertrude & Bill) - (Sally & Bob) - (Alice & Tom)
2. (Alice & Tom) - (Sally & Bob) - (Gertrude & Bill) - (Betty & Jim)

Substitute digits for the letters to make the following addition problem true.

```
      W H O S E
      T E E T H
          A R E
+       A S
-------------------
  S W O R D S
```

Note that the leftmost letter can't be zero in any word. Also, there must be a one-to-one mapping between digits and letters. e.g. if you substitute 3 for the letter H, no other letter can be 3 and all other H in the puzzle must be 3.

Answer
It is obvious that S=1 and T=9.

Also, (H + E) should be greater than 10 and hence, (E + H + E) must 20. Thus, there are 3 possible values for (E, H) pair: (6, 8) or (7, 6) or (8, 4). Use trial-n-error and everything will fit-in.

```
W H O S E       2 8 5 1 6
T E E T H     9 6 6 9 8
   A R E        4 7 6
```

```
+       A S       +       4 1
------------------      ------------------
  S W O R D S       1 2 5 7 3 1
```

When Socrates was imprisoned for being a disturbing influence, he was held in high esteem by his guards. All four of them hoped that something would occur that would facilitate his escape. One evening, the guard who was on duty intentionally left the cell door open so that Socrates could leave for distant parts.
Socrates did not attempt to escape, as it was his philosophy that if you accept society's rules, you must also accept it's punishments. However, the open door was considered by the authorities to be a serious matter. It was not clear which guard was on that evening. The four guards make the following statements in their defense:

Aaron:
A) I did not leave the door open.
B) Clement was the one who did it.

Bob:
A) I was not the one who was on duty that evening.
B) Aaron was on duty.

Clement:
A) Bob was the one on duty that evening.
B) I hoped Socrates would escape.

David:
A) I did not leave the door open.
B) I was not surprised that Socrates did not attempt to escape.

Considering that, in total, three statements are true, and five statements are false, which guard is guilty

Answer
David is the guilty.

Note that "All four of them hoped that something would occur that would facilitate his escape". It makes Clement's statement B True and David's statement B False.

Now consider each of them as a guilty, one at a time.

	Aaron		Bob		Clement		David		True
	A	B	A	B	A	B	A	B	Stmts
If Aaron is guilty	False	False	True	True	False	True	True	False	4
If Bob is guilty	True	False	False	False	True	True	True	False	4
If Clement is guilty	True	True	True	False	False	True	True	False	5
If David is guilty	True	False	True	False	False	True	False	False	3

Since in total, three statements are true and five statements are false. It is clear from the above table that David is?

Given any whole number take the sum of the digits, and the product of the digits, and multiply these together to get a new whole number.
For example, starting with 6712, the sum of the digits is (6+7+1+2) = 16, and the product of the digits is (6*7*1*2) = 84. The answer in this case is then 84 x 16 = 1344.
If we do this again starting from 1344, we get (1+3+4+4) * (1*3*4*4) = 576
And yet again (5+7+6) * (5*7*6) = 3780
At this stage we know what the next answer will be (without working it out) because, as one digit is 0, the product of the digits will be 0, and hence the answer will also be 0.
Can you find any numbers to which when we apply the above mentioned rule repeatedly, we never end up at 0?

There were N stations on a railroad. After adding X stations 46 additional tickets have to be printed. Find N and X.

Answer
Let before adding X stations, total number of tickets
$t = N(N-1)$

After adding X stations total number of tickets are
$t + 46 = (N+X)(N+X-1)$

Subtracting 1st from 2nd
$46 = (N+X)(N+X-1) - N(N-1)$
$46 = N^2 + NX - N + NX + X^2 - X - N^2 + N$
$46 = 2NX + X^2 - X$
$46 = (2N - 1)X + X^2$
$X^2 + (2N - 1)X - 46 = 0$

Now there are only two possible factors of 46. They are (46,1) and (23,2)

Case I: (46,1)
$2N - 1 = 45$
$2N = 46$
$N = 23$
And $X = 1$

Case II: (23,2)
$2N - 1 = 21$
$2N = 22$
$N = 11$
And $X = 2$

Hence, there are 2 possible answers.

An emergency vehicle travels 10 miles at a speed of 50 miles per hour.
How fast must the vehicle travel on the return trip if the round-trip travel time is to be 20 minutes?

Answer
75 miles per hour

While going to the destination, the vehicle travels 10 mils at the speed of 50 miles per hour. So the time taken to travel 10 miles is
= (60 * 10) / 50
= 12 minutes

Now it's given that round-trip travel time is 20 minutes. So the vehicle should complete its return trip of 10 miles in 8 minutes. So the speed of the vehicle must
= (60 * 10) / 8
= 75 miles per hour

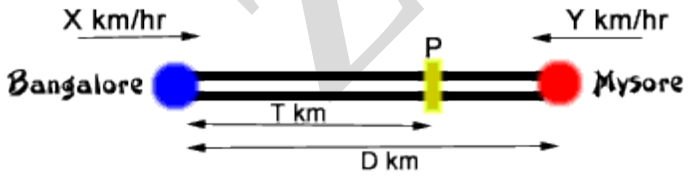
All of the students at a college are majoring in psychology, business, or both. 73% of the students are psychology majors, & 62% are business majors.
If there are 200 students, how many of them are majoring in both psychology & business?

Answer
70 students are majoring in both, psychology & business

If 73% of the students are psychology majors, we know that 27% are not psychology majors. By the same reasoning, 38% are not business majors, because 62% of the students do major in business. So: 27 + 38 = 65

65% of the students are not majoring in both psychology & business, so 35% are double majors, a total of 70 students. Two trains starting at same time, one from Bangalore to Mysore and other in opposite direction arrive at their destination 1hr and 4hrs respectively after passing each other.

Answer



The speed of Bangalore-Mysore train is TWICE the speed of Mysore-Bangalore train.

Let the distance between Bangalore and Mysore is D kms.
Also, let speed of the train from Bangalore to Mysore is X km/hr and speed of the tain from Mysore to Bangalore is Y km/hr.

Now, assume that both the trains met each other at T kms from the Bangalore (point P in figure)
Time taken by Bangalore-Mysore train to reach P = Time taken by Mysore-Bangalore train to

reach P
(T / X) = (D - T) / Y -----equ(I)

Also, Bangalore-Mysore train and Mysore-Bangalore train arrive destination 1 hr and 4 hrs respectively after passing each other. It means that Bangalore-Mysore train travels (D - T) kms in 1 hr at X km/hr and Mysore-Bangalore train travels T kms in 4 hrs at Y km/hr. Hence,
(D - T) = X and
T = 4 * Y

Substituting these values in equation I, we get
(4 * Y) / X = X / Y
4 * Y * Y = X * X
2 * Y = X

Hence, the speed of Bangalore-Mysore train is TWICE the speed of Mysore-Bangalore train.How much faster is one train from other?

Answer
49 times

Let's assume that everyone clinked their mug with friend to his left only. It means that there are total 49 clinks. Now the right clink of each person is left clink of the person on right which is already happened. Hence, there are only 49 clinks.

Mrs. Watsherface had a garage sale. A custmer named Gina bought an old lamp and a rug. She paid a total of $5.25 for everything. The rug cost 25 cents more than the lamp. How much did each cost?

Answer
The lamp cost $ 2.50 and the rug cost $ 2.75

A simple one.

Assume that the lamp cost $ L.
Hence the rug must have cost $ (L + 0.25)
Also, total cost is $ 5.25, Hence the equation :
L + L + 0.25 = 5.25
2 * L = 5
L = 2.50

Hence, the lamp cost $ 2.50 and the rug cost $ 2.75

Write 1111.....(243 times) i.e. a 243 digit number with all 1s. Prove that it is divisible by 243. Prove it using the mathematical induction.
First here are a couple of things to note:

[1] A number whose digits add up to a multiple of three is divisable by 3.
e.g. 369: 3+6+9=18: 1+8=9 which is a multiple of 3 hence 369 is divisable by 3.

[2] Whenever a number (X) is multiplied with another number (Y) then the product (X*Y) will have all the factors of X as well as all the factors of Y in its set of factors.
e.g. if X has factors of (1,P,Q,X) and Y has factors of (1,Q,R,Y) then X*Y has factors of (1,P,Q,Q,R,X,Y).

Let
N = any series of digits (e.g. N=369)
D = the number of digits in N (e.g. if N=369 then D=3)
P = is a number constructed in the following way : a 1, followed by (D-1) 0s, followed by another 1, followed by (D-1) 0s, followed by another 1. (e.g. if N=369 then D=3 and P would be 1001001)
Note that P will always be divisible by 3.

Also, if we multiply N with P we are essentially repeating N for (D-1) times.
e.g. if N=369 then D=3, P=1001001 and N*P=369369369

Let's start with N=111. It is clear that N is divisible by 3. (From [1])
Also, D=3 and P=1001001
N*P=111111111 (9 times)
The resulting number 111111111 must be divisible by 9 as N and P both are divisible by 3.

Now, let's start with N=111111111. It is clear that N is divisible by 9.
Also, D=9 and P=1000000001000000001
N*P=111111111... (27 times)
The resulting number 1111111... (27 times) must be divisible by 27 as N is divisible by 9 and P is divisible by 3.

Repeat the same procedure for N=1111111... (27 times) The resulting number 1111111... (81 times) must be divisible by 81 as N is divisible by 27 and P is divisible by 3.

Similarly, for N=1111111... (81 times) The resulting number 1111111... (243 times) must be divisible by 243 as N is divisible by 81 and P is divisible by 3.

Thus, 1111111... (243 times) is divisible by 243.

*ed*Karan bought a little box of midget matches, each one inch in length. He found that he could arrange them all in the form of a triangle whose area was just as many square inches as there were matches.
He then used up six of the matches, and found that with the remainder he could again construct another triangle whose area was just as many square inches as there were matches.
And using another six matches he could again do precisely the same.
How many matches were there in the box originally?

Note that the match-box can hold maximum of 50 matches.
Answer
Initially, there were 42 or 36 matches in the match-box.

There are 42 matches in the box with which he could form a triangle 20, 15, 7, with an area of 42 square inches. After 6 matches had been used, the remaining 36 matches would form a

triangle 17, 10, 9, with an area of 36 square inches. After using another 6 matches, the remaining 30 matches would form a triangle 13, 12, 5, with an area of 30 square inches. After using another 6, the 24 remaining would form a triangle 10, 8, 6, with an area of 24 square inches.

Thus, there are two possible answers. There were either 42 or 36 matches in the match-box.

Also it is interesting to know that there are just 5 such triangles for which the perimeter and the area is the same (assuming all sides are integers) and they are :
24 (10, 8, 6)
30 (13, 12, 5)
36 (17, 10, 9)
42 (20, 15, 7)
60 (29, 25, 6)

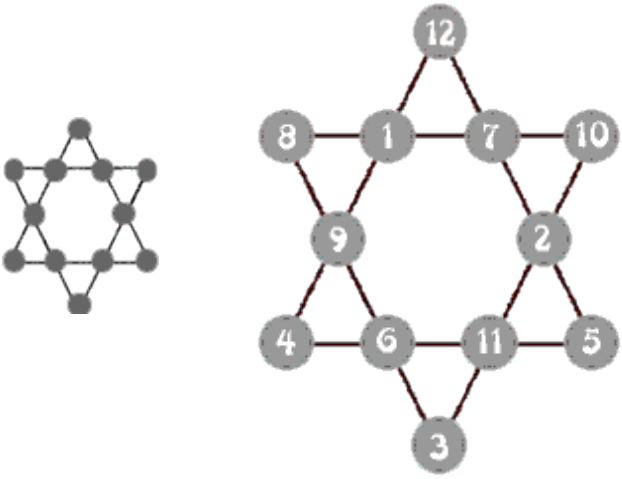
Find the values of each of the alphabets.

```
  N O O N
  S O O N
+ M O O N
----------
  J U N E
```

Answer
Using trial and error. There are 2 solutions to it and may be more.

```
  2 4 4 2
  1 4 4 2
+ 5 4 4 2
----------
  9 3 2 6
  4 1 1 4
  5 1 1 4
+ 0 1 1 4
----------
  9 3 4 2
```

We have to fill number from 1 to 12 at the intersection point of two or more lines. We have to construct a star using two triangle. The sum of all number lying in straight lines should be same. This can be easilty understood by the fig. and hence solved.



We have one answer where sum of all the numbers lying in straight lines is 26.

Montu, Bantu, Chantu and Pintu have pets.
Montu says, "If Pintu and I each have a dog, then exactly one of Bantu and Chantu has a dog."
Bantu says, "If Chantu and I each have a cat, then exactly one of Montu and Pintu has a dog."
Chantu says, "If Montu and I each have a dog, then exactly one of Bantu and Pintu has a cat."
Pintu says, "If Bantu and I each have a cat, then exactly one of Bantu and I has a dog."
Only one of the four is telling the truth. Who is telling the truth?

Answer
Bantu is telling the truth.

For a IF-THEN statement to be false, IF part has to be true and THEN part has to be false.

Since only one statement is true and remaining three are false, IF part of three statements are true & THEN part of one statement is true. Let's put the given information in table. The pet-name in the normal text represents the IF part and the pet-name in round brackets represents the THEN part.

	Montu	Bantu	Chantu	Pintu
Montu says	Dog	(Dog)	(Dog)	Dog
Bantu says	(Dog)	Cat	Cat	(Dog)
Chantu says	Dog	(Cat)	Dog	(Cat)
Pintu says		Cat (Dog)		Cat (Dog)

It is clear that the IF part of the statements made by Montu, Chantu and Pintu are true as they do not contradict each other. And the IF part of the statement made by Bantu is false.

Thus, Bantu is telling the truth.

Montu have a Dog and may or may not have a Cat.

Bantu have a Cat.
Chantu have a Dog.
Pintu have a Dog and a Cat.

Somebody marked the six faces of a die with the numbers 1, 2 and 3 - each number twice. The die was put on a table. Four people - Abu, Babu, Calu and Dabu - sat around the table so that each one was able to see only three sides of the die at a glance.
Abu sees the number 1 and two even numbers.
Babu and Calu can see three different numbers each.
Dabu sees number 2 twice and he can't remember the third number.
What number is face down on the table?

Answer
Number 3 is face down on the table.

If Abu can see two even numbers i.e. number 2 twice, and if Dabu can see number 2 twice, then number 2 must be facing up.

Now everything else is simple. (see the following diagram)

```
Dabu        Abu
      1
   3  2  2
      1
Calu        Babu
```

Thus, the number hidden from the view is number 3 and hence the answer.

Two identical pack of cards A and B are shuffled throughly. One card is picked from A and shuffled with B. The top card from pack A is turned up. If this is the Queen of Hearts, what are the chances that the top card in B will be the King of Hearts?

Answer
52 / 2703

There are two cases to be considered.

CASE 1 : King of Hearts is drawn from Pack A and shuffled with Pack B
Probability of drawing King of Hearts from Pack A = 1/51 (as Queen of Hearts is not to be drawn)
Probability of having King of Hearts on the top of the Pack B = 2/53
So total probability of case 1 = (1/51) * (2/53) = 2 / (51 * 53)

CASE 2 : King of Hearts is not drawn from Pack A
Probability of not drawing King of Hearts from Pack A = 50/51 (as Queen of Hearts is not to be drawn)
Probability of having King of Hearts on the top of the Pack B = 1/53

So total probability of case 2 = (50/51) * (1/53) = 50 / (51 * 53)

Now adding both the probability, the required probability is
= 2 / (51 * 53) + 50 / (51 * 53)
= 52 / (51 * 53)
= 52 / 2703
= 0.0192378

How many possible combinations are there in a 3x3x3 rubics cube?
In other words, if you wanted to solve the rubics cube by trying different combinations, how many might it take you (worst case senerio)?
How many for a 4x4x4 cube?

Answer

There are 4.3252 * 10^19 possible combinations for 3x3x3 Rubics and 7.4012 * 10^45 possible combinations for 4x4x4 Rubics.

Let's consider 3x3x3 Rubics first.

There are 8 corner cubes, which can be arranged in 8! ways.
Each of these 8 cubes can be turned in 3 different directions, so there are 3^8 orientations altogether. But if you get all but one of the corner cube into chosen positions and orientations, only one of 3 orientations of the final corner cube is possible. Thus, total ways corner cubes can be placed = (8!) * (3^8)/8 = (8!) * (3^7)

Similarly, 12 edge cubes can be arranged in 12! ways.
Each of these 12 cubes can be turned in 2 different directions, so there are 2^12 orientations altogether. But if you get all but one of the edge cube into chosen positions and orientations, only one of 2 orientations of the final edge cube is possible. Thus, total ways edge cubes can be placed = (12!) * (2^12)/2 = (12!) * (2^11)

Here, we have essentially pulled the cubes apart and stuck cubes back in place wherever we please. In reality, we can only move cubes around by turning the faces of the cubes. It turns out that you can't turn the faces in such a way as to switch the positions of two cubes while returning all the others to their original positions. Thus if you get all but two cubes in place, there is only one attainable choice for them (not 2!). Hence, we must divide by 2.

Total different possible combinations are
= [(8!) * (3^7)] * [(12!) * (2^11)] / 2
= (8!) * (3^7) * (12!) * (2^10)
= 4.3252 * 10^19

Similarly, for 4x4x4 Rubics total different possible combinations are
= [(8!) * (3^7)] * [(24!)] * [(24!) / (4!^6)] / 24
= 7.4011968 * 10^45

Note that there are 24 edge cubes, which you can not turn in 2 orientations (hence no 2^24 / 2). Also, there are 4 center cubes per face i.e. (24!) / (4!^6). You can switch 2 cubes without

affecting the rest of the combination as 4*4*4 has even dimensions (hence no division by 2). But pattern on one side is rotated in 4 directions over 6 faces, hence divide by 24.

There are 20 people in your applicant pool, including 5 pairs of identical twins.
If you hire 5 people randomly, what are the chances you will hire at least 1 pair of identical twins? (Needless to say, this could cause trouble..

Answer
The probability to hire 5 people with at least 1 pair of identical twins is 25.28%

5 people from the 20 people can be hired in 20C5 = 15504 ways.

Now, divide 20 people into two groups of 10 people each :
G1 - with all twins
G2 - with all people other than twins

Let's find out all possible ways to hire 5 people without a single pair of indentical twins.

People from G1	People from G2	No of ways to hire G1 without a single pair of indentical twins	No of ways to hire G2	Total ways
0	5	10C0	10C5	252
1	4	10C1	10C4	2100
2	3	10C2 * 8/9	10C3	4800
3	2	10C3 * 8/9 * 6/8	10C2	3600
4	1	10C4 * 8/9 * 6/8 * 4/7	10C1	800
5	0	10C5 * 8/9 * 6/8 * 4/7 * 2/6	10C0	32
Total				11584

Thus, total possible ways to hire 5 people without a single pair of indentical twins = 11584 ways

So, total possible ways to hire 5 people with at least a single pair of indentical twins = 15504 - 11584 = 3920 ways

Hence, the probability to hire 5 people with at least a single pair of indentical twins
= 3920/15504
= 245/969
= 0.2528
= 25.28%*itted*

Veeru says to Jay, "Can you figure out how many Eggs I have in my bucket?" He gives 3 clues to Jay: If the number of Eggs I have
is a multiple of 5, it is a number between 1 and 19
is not a multiple of 8, it is a number between 20 and 29
is not a multiple of 10, it is a number between 30 and 39
How many Eggs does Veeru have in his bucket?

Answer
32 eggs

Let's apply all 3 condition separately and put all possible numbers together.

First condition says that if multiple of 5, then the number is between 1 and 19. Hence, the possible numbers are (5, 10, 15, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39)

Second condition says that if not a multiple of 8, then the number is between 20 and 29. Hence, the possible numbers are (8, 16, 20, 21, 22, 23, 25, 26, 27, 28, 29, 32)

Third condition says that if not a multiple of 10, then the number is between 30 and 39. Hence, the possible numbers are (10, 20, 31, 32, 33, 34, 35, 36, 37, 38, 39)

Only number 32 is there in all 3 result sets. That means that only number 32 satisfies all three conditions. Hence, Veeru have 32 eggs in his bucket.

Mr. Black, Mr. White and Mr. Grey were chatting in the Yahoo conference. They were wearing a black suit, a white suit and a grey suit, not necessarily in the same order.
Mr. Grey sent message, "We all are wearing suit that are of the same color as our names but none of us is wearing a suit that is the same color as his name."
On that a person wearing the white suit replied, "What difference does that make?"
Can you tell what color suit each of the three persons had on?

Answer
Mr. Grey is wearing Black suit.
Mr. White is wearing Grey suit.
Mr. Black is wearing White suit.

Mr. Grey must not be wearing grey suit as that is the same colour as his name. Also, he was not wearing white suit as the person wearing white suit responded to his comment. So Mr Grey must be wearing a black suit.

Similarly, Mr. White must be wearing either black suit or grey suit. But Mr. Grey is wearing a black suit. Hence, Mr. White must be wearing a grey suit.

And, Mr. Black must be wearing white suit.

Substitute numbers for the letters so that the following mathematical expressions are correct.

```
  ABC          DEF          GHI
  --- = IE     --- = IE     --- = IE
   3           6            9
```

Note that the same number must be used for the same letter whenever it appears.

Answer
A=2, B=1, C=9, D=4, E=3, F=8, G=6, H=5, I=7

Let's start with GHI = 9 * IE. Note that I appears on both the side. Also, after multiplying IE by 9 the answer should have I at the unit's place. The possible values of IE are 19, 28, 37, 46, 55, 64, 73, 82 and 91; out of which only 64, 73 and 82 satisfies the condition. (as all alphabet

should represent different digits)

Now, consider DEF = 6 * IE. Out of three short-listed values, only 73 satisfies the equation.
Also, ABC = 3 * IE is satisfied by 73.

Hence, A=2, B=1, C=9, D=4, E=3, F=8, G=6, H=5, I=7

$$\frac{219}{3} = 73 \qquad \frac{438}{6} = 73 \qquad \frac{657}{9} = 73$$

A, B, C and D are related to each other.
One of the four is the opposite sex from each of the other three.
D is A's brother or only daughter.
A or B is C's only son.
B or C is D's sister.

Answer
A, B & D are males; C is female. B is C's only son. A & D are C's brothers.

Work out which relation can hold and discard the contradictory options.

From (2) and (4), D can not be a only daughter and have a sister (B or C). Hence, D is A's brother i.e. D is a Male.

From (4), let's say that B is D's sister i.e. B is Female.
From (3), A is C's only son i.e. A is Male.
But D is A's brother which means that A is not C's only son. Hence, our assumption was wrong.

Thus, C is D's sister i.e. C is Female. And B must be C's only son.

Now it is clear that D & B are Males and C is Female. A must be a Male as only one of them is of opposite sex from each of the other three. And he is C & D's brother.How are they related to each other?

Dr. DoLittle always goes walking to the clinic and takes the same time while going and while coming back. One day he noticed something.
When he left the home, the hour hand and the minute hand were exactly opposite to each other and when he reached the clinic, they were together.
Similarly, when he left the clinic, the hour hand and the minute hand were together and when he reached the home, they were exactly opposite to each other.

How much time does Dr. DoLittle take to reach home from the clinic? Give the minimal possible answer.

Answer
32 minutes 43.6 seconds

In twelve hours, the minute hand and the hour hand are together for 11 times. It means that after every 12/11 hours, both the hands are together.

Similarly in twelve hours, the minute hand and the hour hand are exactly opposite to each other for 11 times. It means that after every 12/11 hours, both the hands are opposite.

Now, let's take an example. We know that at 12 both the hands are together and at 6 both the hands are exactly opposite to each other.

After 6, both the hands are in opposition at [6+(12/11)] hours, [6+2*(12/11)] hours, [6+3*(12/11)] hours and so on. The sixth such time is [6+6*(12/11)] hours which is the first time after 12. Thus after 12, both the hands are opposite to each other at 12:32:43.6

Hence, Dr. DoLittle takes 32 minutes and 43.6 seconds to reach home from the clinic.

SlowRun Express runs between Bangalore and Mumbai, For the up as well as the down journey, the train leaves the starting station at 10:00 PM everyday and reaches the destination at 11:30 PM after three days.
Mr. Haani once travelled by SlowRun Express from Mumbai to Bangalore. How many SlowRun Express did he cross during his journey?

Answer
Mr. Haani crossed 7 SlowRun Expresses during his journey.

Let's say that Mr. Haani travelled by SlowRun Express on Wednesday 10:00PM from Mumbai. The first train he would have crossed is the one scheduled to arrive at Mumbai at 11:30 PM the same day i.e. the one that left Bangalore at 10:00 PM on last Sunday.

Also, he would have crossed the last train just before reaching Bangalore on Saturday.
Thus, Mr. Haani must have crossed 7 SlowRun Expresses during his journey.

Six cabins numbered 1-6 consecutively, are arranged in a row and are separated by thin dividers. These cabins must be assigned to six staff members based on following facts.
Miss Shalaka's work requires her to speak on the phone frequently throughout the day.
Miss Shudha prefers cabin number 5 as 5 is her lucky number.
Mr. Shaan and Mr. Sharma often talk to each other during their work and prefers to have adjacent cabins.
Mr. Sinha, Mr. Shaan and Mr. Solanki all smoke. Miss Shudha is allergic to smoke and must have non-smokers adjacent to her.
Mr. Solanki needs silence during work.
Can you tell the cabin numbers of each of them?

Answer
The cabins from left to right (1-6) are of Mr. Solanki, Mr. Sinha, Mr. Shaan, Mr. Sharma, Miss Shudha and Miss Shalaka.

From (2), cabin number 5 is assigned to Miss Shudha.

As Miss Shudha is allergic to smoke and Mr. Sinha, Mr. Shaan & Mr. Solanki all smoke, they must be in cabin numbers 1, 2 and 3 not necessarily in the same order. Also, Miss Shalaka and Mr. Sharma must be in cabin 4 and 6.

From (3), Mr. Shaan must be in cabin 3 and Mr. Sharma must be in cabin 4. Thus, Miss Shalaka is in cabin 6.

As Mr. Solanki needs silence during work and Mr. Shaan is in cabin 3 who often talks to Mr. Sharma during work, Mr. Solanki must be in cabin 1. Hence, Mr. Sinha is in cabin 2.

Thus, the cabins numbers are
1# Mr. Solanki,
2# Mr. Sinha,
3# Mr. Shaan,
4# Mr. Sharma,
5# Miss Shudha,
6# Miss Shalaka

SkyFi city is served by 6 subway lines - A, E, I, O, U and Z.
When it snows, morning service on line E is delayed.
When it rains or snows, service on the lines A, U and Z is delayed both morning and afternoon.
When the temperature drops below 20 C, afternoon service is cancelled on either line A or line O, but not both.
When the temperature rises above 40 C, afternoon service is cancelled on either line I or line Z, but not both.
When service on line A is delayed or cancelled, service on line I is also delayed.
When service on line Z is delayed or cancelled, service on line E is also delayed.
On February 10, it snows all day with the temperature at 18C. On how many lines service will be delayed or cancelled, including both morning and afternoon?
SkyFi city is served by 6 subway lines - A, E, I, O, U and Z.
When it snows, morning service on line E is delayed.
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When service on line A is delayed or cancelled, service on line I is also delayed.
When service on line Z is delayed or cancelled, service on line E is also delayed.
On February 10, it snows all day with the temperature at 18C. On how many lines service will be delayed or cancelled, including both morning and afternoon?

In a certain game, if 2 wixsomes are worth 3 changs, and 4 changs are worth 1 plut, then 6 plutes are worth how many wixsomes?

Answer
It is given that
2 wixsomes = 3 changs
8 wixsomes = 12 changs ----- (I)

Also, given that
4 changs = 1 plut
12 changs = 3 plutes
8 wixsomes = 3 plutes ----- From (I)

Therefore,
6 plutes = 16 wixsomes

In a certain year, the number of girls who graduated from City High School was twice the number of boys. If 3/4 of the girls and 5/6 of the boys went to college immediately after graduation, what fraction of the graduates that year went to college immediately after graduation?

Answer
Assume that number of boys graduated from City High School = B
Therefore, number of girls graduated from City High School = 2*B

It is given that 3/4 of the girls and 5/6 of the boys went to college immediately after graduation.
Hence, total students went to college
= (3/4)(2*B) + (5/6)(B)
= B * (3/2 + 5/6)
= (7/3)B

Fraction of the graduates that year went to college immediately after graduation
= [(7/3)B] / [3*B]
= 7/9

Therefore, the answer is 7/9

A mule and a donkey were carrying full sacks on their backs.
The mule started complaining that his load was too heavy. The donkey said to him "Why are you complaining? If you gave me one of your sacks I'd have double what you have and if I give you one of my sacks we'd have an even amount."
How many sacks were each of them carrying? Give the minimal possible answer.

Answer
The mule was carrying 5 sacks and the donkey was carrying 7 sacks.

Let's assume that the mule was carrying M sacks and the donkey was carrying D sacks.

As the donkey told the mule, "If you gave me one of your sacks I'd have double what you have."
D + 1 = 2 * (M-1)
D + 1 = 2M - 2
D = 2M - 3

The donkey also said, "If I give you one of my sacks we'd have an even amount."
D - 1 = M + 1
D = M + 2

Comparing both the equations,
2M - 3 = M + 2
M = 5

Substituting M=5 in any of above equation, we get D=7
Hence, the mule was carrying 5 sacks and the donkey was carrying 7 sacks.

Two people enter a race in whick you run to a point and back. Person A runs 20 mph to and from the point. Person B runs to the point going 10 mph and 30 mph going back. Who came in first?

Answer
Person A came in first.

Let's assume that the distance between start and the point is D miles.

Total time taken by Person A to finish
= (D/20) + (D/20)
= D/10
= 0.1D

Total time taken by Person B to finish
= (D/10) + (D/30)
= 2D/15
= 0.1333D

Thus, Person A is the Winner.

Alternatively (if you don't like mathematics ;)), analyse the situation as follow:

Note that initially speed of Person A (20 mph) was twice the speed of Person B (10 mph). Hence, when Person A (20 mph forward) reached the point, Person B (10 mph forward) was halfway. When Person A (20 mph back) finished, Person B (still 10 mph forward) reached the point.

Thus, Person A wins the race and by that time Person B covers only half the distance, no matter how far the point is!!!

Mark ate half of a pizza on Monday. He ate half of what was left on Tuesday and so on. He followed this pattern for one week.

How much of the pizza would he have eaten during the week?

Answer
Mark would have ate 127/128 (99.22%) of the pizza during the week.

Mark ate half the pizza on Monday. On Tuesday, he would have ate half of the remaining pizza i.e. 1/4 of the original pizza. Similarly, he would have ate 1/8 of the original pizza on Wednesday and so on for the seven days.

Total pizza Mark ate during the week is
= 1/2 + 1/4 + 1/8 + 1/16 + 1/32 + 1/64 + 1/128
= 127/128
= 99.22% of the original pizza

In the General meeting of "Friends Club", Sameer said, "The repairs to the Club will come to a total of Rs 3120 and I propose that this amount should be met by the members, each paying an equal amount."
The proposal was immediately agreed. However, four members of the Club chose to resign, leaving the remaining members to pay an extra Rs 26 each.
How many members did the Club originally have?

Answer
The Club originally had 24 members.

Assume that there were initially N members.

As 4 members resigned and remaining members paid Rs 26 each, it means that total amount of 4 members is equal to Rs 26 each from remaining (N-4) members. Thus,

$4 * (3120 / N) = 26 * (N - 4)$
$12480 = 26N^2 - 104N$
$26N^2 - 104N - 12480 = 0$

Solving the quadratic equation we get N=24.

Hence, the Club originally had 24 members.

A tank can be filled by pipe A in 30 minutes and by pipe B in 24 minutes. Outlet pipe C can empty the full tank in one hour and twenty minutes.
If the tank is empty initially and if all the three pipes A, B and C are opened simultaneously, in how much time will the tank be full?

Answer
The tank will be full in 16 minutes.

In one minute,
pipe A can fill 1/30 part of the tank.
pipe B can fill 1/24 part of the tank.
pipe C can empty 1/80 part of the tank.

Thus, the net water level in one minute is
= 1/30 + 1/24 - 1/80
= 15/240 part of the tank

Hence, the tank will be full in 240/15 i.e. 16 minutes.

A rich old Arab has three sons. When he died, he willed his 17 camels to the sons, to be divided as follows:
First Son to get 1/2 of the camels Second Son to get 1/3rd of the camels Third Son to get 1/9th of the camels.
The sons are sitting there trying to figure out how this can possibly be done, when a very old wise man goes riding by. They stop him and ask him to help them solve their problem. Without hesitation he divides the camels properly and continues riding on his way.
How did he do it?

Answer
The old man temporarily added his camel to the 17, making a total of 18 camels.

First son got 1/2 of it = 9
Second son got 1/3 of it = 6
Third son got 1/9 of it = 2
For a total of 17. He then takes his camel back and rides away.....

There were two men standing on a street. The one says to the other, "I have 3 daughters, the product of their ages is 36. What is the age of the OLDEST daughter?"
The second guy says, "I need more information." So, the first guy says, "The sum of their ages is equal to the address of the house across the street."
The second guy looks at the address and says, "I still need more information." So, the first guy says, "My oldest daughter wears a red dress."

Answer
The answer is 9 years.

First you need to find all the possible sets of three numbers that when multiplied equals 36:

1 1 36
1 2 18
1 3 12
1 4 9
1 6 6
2 2 9
2 3 6
3 3 4

Then you add the numbers together to find the sum
1 1 36 = 38
1 2 18 = 21

1 3 12 = 16
1 4 9 = 14
1 6 6 = 13
2 2 9 = 13
2 3 6 = 11
3 3 4 = 10

Even though we don't know the address the guy knows it. For him to need more information that means that at least two of the sets of numbers has the same sum. Two of them do, 1 6 6 and 2 2 9.

When the first guy said that his OLDEST daugher wears a red dress that meant that there had to be the oldest. So 1 6 6 can't possibly be the answer. So the possible possiblity is 2 2 9 and the OLDEST daughter is 9 years old.

Therefore, the answer is 9.

There are 3 colored boxes - Red, Green and Blue. Each box contains 2 envelopes. Each envelope contains money - two of them contain Rs. 25000 each, two of them contain Rs. 15000 each and remaining two contain Rs. 10000 each.
There is one statement written on the cover of each box.
* Red Box: Both, a red box and a blue box contain Rs. 10000 each.
* Green Box: Both, a green box and a red box contain Rs. 25000 each.
* Blue Box: Both, a blue box and a green box contain Rs. 15000 each.
Only one of the above 3 statements is true and the corresponding box contains the maximum amount.
Can you tell which box contains the maximum amount and how much?

Answer
Blue box contains the maximum amount Rs. 40000

As it is given that only one of the given 3 statements is true; assume in turn, each statement to be true & the other 2 false and check whether the corresponding box contains the maximum amount.

Let's assume that the statement on the Blue box is true. Thus, the given 3 statements can be interpreted as
* Atmost one, a red box or a blue box contains Rs. 10000.
* Atmost one, a green box or a red box contains Rs. 25000.
* Both, a blue box and a green box contain Rs. 15000 each.

Going through all possible combinations, we can conclude that
Red Box : Rs. 10000 + Rs. 25000 = Rs. 35000
Green Box : Rs. 10000 + Rs. 15000 = Rs. 25000
Blue Box : Rs. 15000 + Rs. 25000 = Rs. 40000

You can test out for other two statements i.e. assuming Red box statement true and then Green box statement true. In both the cases, other statements will contradict the true statement.

Sachin, Dravid and Ganguly played in a Cricket match between India and England.
None of them scored more than 99 runs.
If you add the digits of the runs scored by Sachin to his own score, you will get the runs scored by Dravid.
If you reverse the digits of the runs scored by Dravid, you will get the runs scored by Ganguly.
The total runs scored by them is 240.
Can you figure out their individual scores?
Answer
Sachin, Dravid and Ganguly scored 75, 87 and 78 respectively.

Sachin's score must be less than 86, otherwise Dravid's score would be more than 99. Also, he must have scored atleast 42 - incase Dravid and Ganguly scored 99 each.

Also, as none of them scored more than 99 and the total runs scored by them is 240; their individual scores must be around 80.

Now, use trial-n-error method to solve the teaser.
Three men, including Gianni and three woman, including Sachi are in line at the BrentWood post office. Each has two different pieces of business to conduct.
The first person is a woman.
Carlos wants to send an overnight package.
Lau is just ahead of Pimentelli who is the same sex as Lau.
Gianni is two places ahead of the person who wants to buy stamps.
Knutson - who is the opposite sex than Rendler - isn't the person who wanted to complain about a mail carrier.
The six people, not necessarily in the same order are - Anthony, Donna, the person who wants to fill out a change-of-address form, the one who wants to buy a money order, the one who wants to send Airmail to Tibet and the second person in the line.
The four tasks of the last two people in line, not necessarily in the same order are - sending books fourth class, buying a money order, picking up a package and complaining about a mail carrier.
The person who wants to send books fourth class is just behind a person of the same sex.
Mary is just behind a person who wants to send an insured package.
The person who wants to send Airmail to Tibet is either two places ahead of or two places behind the one who wants to add postage to his or her meter.
Anthony isn't two places behind the who wants to pickup a registered letter.
Toriseza is two places ahead of the person who wants to pick up a package.
Knutson isn't just ahead of the person who wants to send an item parcel post.
Can you figure out where each customer is in the line, his or her full name (one surname is Loti) and the two things he or she wants to accomplish? Provide your answer is POSITION - FIRST NAME - LAST NAME - BUSINESS format.

Answer
A very TOUGH puzzle!!!

POS	FIRST NAME	LAST NAME	BUSINESS
1	Sachi	Loti	• Fill Out a Change-of-Address Form

			• Add Postage to Meter
2	Gianni	Lau	• Pick Up a Registered Letter • Send an Item Parcel Post
3	Carlos	Pimentelli	• Overnight Package • Send Airmail to Tibet
4	Donna	Toriseza	• Buy Stamps • Send an Insured Package
5	Mary	Knutson	• Buy a Money Order • Send Books fourth Class
6	Anthony	Rendler	• Complain About a Mail Carrier • Pick Up a Package

If you look at a clock and the time is 3:15.
What is the angle between the hour and the minute hands? (The answer to this is not zero!)

Answer
7.5 degrees

At 3:15 minute hand will be perfactly horizontal pointing towards 3. Whereas hour hand will be towards 4. Also, hour hand must have covered 1/4 of angle between 3 and 4.

The angle between two adjacent digits is 360/12 = 30 degrees.

Hence 1/4 of it is 7.5 degrees.

An apple vendor has 1000 apples and 10 empty boxes. He asks his son to place all the 1000 apples in all the 10 boxes in such a manner that if he asks for any number of apples from 1 to 1000, his son should be able to pick them in terms of boxes.
How did the son place all the apples among the 10 boxes, given that any number of apples can be put in one box.

Answer
1, 2, 4, 8, 16, 32, 64, 128, 256, 489

Let's start from scratch.
The apple vandor can ask for only 1 apple, so one box must contain 1 apple.
He can ask for 2 apples, so one box must contain 2 apples.
He can ask for 3 apples, in that case box one and box two will add up to 3.
He can ask for 4 apples, so one box i.e. third box must contain 4 apples.
Now using box number one, two and three containing 1, 2 and 4 apples respectively, his son can give upto 7 apples. Hence, forth box must contain 8 apples.
Similarly, using first four boxes containing 1, 2, 4 and 8 apples, his son can give upto 15 apples. Hence fifth box must contain 16 apples.
You must have noticed one thing till now that each box till now contains power of 2 apples. Hence the answer is 1, 2, 4, 8, 16, 32, 64, 128, 256, 489. This is true for any number of apples, here in our case only upto 1000.

The letters P, Q, R, S, T, U and V, not necessarily in that order represents seven consecutive integers from 22 to 33.
U is as much less than Q as R is greater than S.
V is greater than U.
Q is the middle term.
P is 3 greater than S.
Can you find the sequence of letters from the lowest value to the highest value?

Answer
The sequence of letters from the lowest value to the highest value is TUSQRPV.

From (3), Q is the middle term.
___ ___ ___ _Q_ ___ ___ ___

From (4), there must be exactly 2 numbers between P and S which gives two possible positions.

[1] ___ _S_ ___ _Q_ _P_ ___ ___

[2] ___ ___ _S_ _Q_ ___ _P_ ___

From (1), the number of letters between U and Q must be same as the number of letters between S and R. Also, the number of letters between them can be 1, 2 or 3.

Using trial and error, it can be found that there must be 2 letters between them. Also, it is possible only in option [2] above.

[2] ___ _U_ _S_ _Q_ _R_ _P_ ___

From (2) V must be the highest and the remaining T must be the lowest number.

_T_ _U_ _S_ _Q_ _R_ _P_ _V_

Thus, the sequence of letters from the lowest value to the highest value is TUSQRPV.

A contractor had employed 100 labourers for a flyover construction task. He did not allow any woman to work without her husband. Also, atleast half the men working came with their wives. He paid five rupees per day to each man, four ruppes to each woman and one rupee to each child. He gave out 200 rupees every evening.
How many men, women and children were working with the constructor?

Answer
16 men, 12 women and 72 children were working with the constructor.

Let's assume that there were X men, Y women and Z children working with the constructor.
Hence,

X + Y + Z = 100

5X + 4Y + Z = 200

Eliminating X and Y in turn from these equations, we get
X = 3Z - 200
Y = 300 - 4Z

As if woman works, her husband also works and atleast half the men working came with their wives; the value of Y lies between X and X/2. Substituting these limiting values in equations, we get

if Y = X,
300 - 4Z = 3Z - 200
7Z = 500
Z = 500/7 i.e. 71.428

if Y = X/2,
300 - 4Z = (3Z - 200)/2
600 - 8Z = 3Z - 200
11Z = 800
Z = 800/11 i.e. 72.727

But Z must be an integer, hence Z=72. Also, X=16 and Y=12
There were 16 men, 12 women and 72 children working with the constructor.

Because cigars cannot be entirely smoked, a Bobo who collects cigar butts can make a cigar to smoke out of every 3 butts that he finds. Today, he has collected 27 cigar butts. How many cigars will he be able to smoke?

Answer
13 not 12

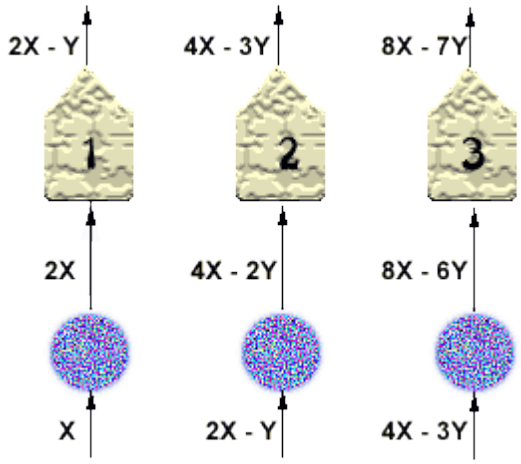
He makes 9 originals from the 27 butts he found, and after he smokes them he has 9 butts left for another 3 cigars. And then he has 3 butts for another cigar.

So 9+3+1=13

In a small town, there are three temples in a row and a well in front of each temple. A pilgrim came to the town with certain number of flowers.
Before entering the first temple, he washed all the flowers he had with the water of well. To his surprise, flowers doubled. He offered few flowers to the God in the first temple and moved to the second temple. Here also, before entering the temple he washed the remaining flowers with the water of well. And again his flowers doubled. He offered few flowers to the God in second temple and moved to the third temple. Here also, his flowers doubled after washing them with water. He offered few flowers to the God in third temple.
There were no flowers left when pilgrim came out of third temple and he offered same number of flowers to the God in all three temples.
What is the minimum number of flowers the pilgrim had initially? How many flower did he offer to each God?

Answer
The pilgrim had 7 flowers, initially and he offered 8 flowers to each God.

Assume that the pilgrim had X flowers initially and he offered Y flowers to each God.



From the above figure, there are (8X - 7Y) flowers when the pilgrim came out of the third temple. But it is given that there were no flowers left when he came out of third temple. It means that
(8X - 7Y) = 0
8X = 7Y

The minimum values of X and Y are 7 and 8 respectively to satisfy above equation. Hence, the pilgrim had 7 flowers and he offered 8 flowers to each God.

In general, the pilgrim had 7N flowers initially and he offered 8N flowers to each God, where N = 1, 2, 3, 4, ...

Tanya wants to go on a date and prefers her date to be tall, dark and handsome.
Of the preferred traits - tall, dark and handsome - no two of Adam, Bond, Cruz and Dumbo have the same number.
Only Adam or Dumbo is tall and fair.
Only Bond or Cruz is short and handsome.
Adam and Cruz are either both tall or both short.
Bond and Dumbo are either both dark or both fair.
Who is Tanya's date?

Answer
Cruz is Tanya's date.

As no two of them have the same number of preferred traits - from (1), exactly one of them has none of the preferred traits and exactly one of them has all the preferred traits.

From (4) and (5), there are only two possibilities:
* Adam & Cruz both are tall and Bond & Dumbo both are fair.
* Adam & Cruz both are short and Bond & Dumbo both are dark.

But from (2), second possibility is impossible. So the first one is the correct possibility i.e. Adam & Cruz both are tall and Bond & Dumbo both are fair.

Then from (3), Bond is short and handsome.

Also, from (1) and (2), Adam is tall and fair. Also, Dumbo is the person without any preferred traits. Cruz is Dark. Adam and Cruz are handsome. Thus, following are the individual preferred traits:

Cruz - Tall, Dark and Handsome
Adam - Tall and Handsome
Bond - Handsome
Dumbo - None :-(

Hence, Cruz is Tanya's date.

Consider a game of Tower of Hanoi (like the one that you can play on BrainVista).
If the tower has 2 discs, the least possible moves with which you can move the entire tower to another peg is 3.
If the tower has 3 discs, the least possible moves with which you can move the entire tower to another peg is 7.
What is the least possible moves with which you can move the entire tower to another peg if the tower has N discs?

Answer
There are number of ways to find the answer.

To move the largest disc (at level N) from one tower to the other, it requires $2^{(N-1)}$ moves. Thus, to move N discs from one tower to the other, the number of moves required is
$= 2^{(N-1)} + 2^{(N-2)} + 2^{(N-3)} + ... + 2^2 + 2^1 + 2^0$
$= 2^N - 1$

For N discs, the number of moves is one more than two times the number of moves for N-1 discs. Thus, the recursive function is
F(1) = 1
F(N) = 2*[F(N-1)] + 1
where N is the total number of discs

Also, one can arrive at the answer by finding the number of moves for smaller number of discs and then derive the pattern.
For 1 disc, number of moves = 1
For 2 discs, number of moves = 3
For 3 discs, number of moves = 7
For 4 discs, number of moves = 15
For 5 discs, number of moves = 31

Thus, the pattern is $2^N - 1$

A boy found that he had a 48 inch strip of paper. He could cut an inch off every second. How long would it take for him to cut 48 pieces? He can not fold the strip and also, can not stack two or more strips and cut them together.

Answer
47 seconds.

To get 48 pieces, the boy have to put only 47 cuts. i.e. he can cut 46 pieces in 46 seconds. After getting 46 pieces, he will have a 2 inches long piece. He can cut it into two with just a one cut in 1 second. Hence, total of 47 seconds.

The cricket match between India and Pakistan was over.
Harbhajan scored more runs than Ganguly.
Sachin scored more runs than Laxman but less than Dravid
Badani scored as much runs as Agarkar but less than Dravid and more than Sachin.
Ganguly scored more runs than either Agarkar or Dravid.
Each batsman scored 10 runs more than his immediate batsman. The lowest score was 10 runs. How much did each one of them score

Answer
A simple one. Use the given facts and put down all the players in order. The order is as follow with Harbhajan, the highest scorer and Laxman, the lowest scorer.
Harbhajan
Ganguly
Dravid
Badani, Agarkar
Sachin
Laxman
Also, as the lowest score was 10 runs. Laxman must have scored 10, Sachin 20, Badani & Agarkar 30 and so on.
Harbhajan - 60 runs
Ganguly - 50 runs
Dravid - 40 runs
Badani, Agarkar - 30 runs each
Sachin - 20 runs
Laxman - 10 runs

There are 10 statements written on a piece of paper:
At least one of statements 9 and 10 is true.
This either is the first true or the first false statement.
There are three consecutive statements, which are false.
The difference between the numbers of the last true and the first true statement divides the number, that is to be found.
The sum of the numbers of the true statements is the number, that is to be found.
This is not the last true statement.
The number of each true statement divides the number, that is to be found.
The number that is to be found is the percentage of true statements.
The number of divisors of the number, that is to be found, (apart from 1 and itself) is greater than the sum of the numbers of the true statements.

There are no three consecutive true statements.
Find the minimal possible number?

Answer
The numebr is 420.

If statement 6 is false, it creates a paradox. Hence, Statement 6 must be true.
Consider Statement 2:
If it is true, it must be the first true statement. Otherwise, it creates a paradox.
If it is false, it must be the second false statement. Otherwise, it creates a paradox.
In both the cases, Statement 1 is false.

As Statement 1 is false, Statement 9 and Statement 10 both are false i.e. there are three consecutive true statements.

1	2	3	4	5	6	7	8	9	10
False	-	-	-	-	True	-	-	False	False

Let\'s assume that Statement 3 is false i.e. there are no three consecutive false statements. It means that Statement 2 and Statement 8 must be true, else there will be three consecutive false statements.

1	2	3	4	5	6	7	8	9	10
False	True	False	-	-	True	-	True	False	False

Also, atleast two of Statements 4, 5 and 7 must be true as there are three consecutive true statements.

According to Statement 8, the number that is to be found is the percentage of true statements. Hence, number is either 50 or 60. Now if Statement 7 is true, then the number of each true statement divides the number, that is to be found. But 7 and 8 do not divide either 50 or 60. Hence, Statement 7 is false which means that Statement 4 and 5 are true. But Statement 5 contradicts the Statement 8. Hence, our assumption that Statement 3 is false is wrong and Statement 3 is true i.e. there are 3 consecutive false statements which means that Statement 8 is false as there is no other possibilities of 3 consecutive false statements.

Also, Statement 7 is true as Statement 6 is not the last true statement.

1	2	3	4	5	6	7	8	9	10
False	-	True	-	-	True	True	False	False	False

According to Statement 7, the number of each true statement divides the number, that is to be found. And according to Statement 5, the sum of the numbers of the true statements is the number, that is to be found. For all possible combinations Statement 5 is false.

There 3 consecutive true statements. Hence, Statement 2 and Statement 4 are true.

1	2	3	4	5	6	7	8	9	10
False	True	True	True	False	True	True	False	False	False

Now, the conditions for the number to be found are:
The numebr is divisible by 5 (Statement 4)

The numebr is divisible by 2, 3, 4, 6, 7 (Statement 7)
The number of divisors of the number, that is to be found, (apart from 1 and itself) is not greater than the sum of the numbers of the true statements. (Statement 9)

The minimum possible number is 420.
The divisors of 420, apart from 1 and itself are 2, 3, 4, 5, 6, 7, 10, 12, 14, 15, 20, 21, 28, 30, 35, 42, 60, 70, 84, 105, 140, 210. There are total of 22 divisors. Also, the sum of the numbers of the true statements is 22 (2+3+4+6+7=22), which satisfies the third condition.

Ankit and Tejas divided a bag of Apples between them.
Tejas said, "It's not fair! You have 3 times as many Apples I have." Ankit said, "OK, I will give you one Apple for each year of your age." Tejas replied, "Still not fair. Now, you have twice as many Apples as I have." "Dear, that's fair enough as I am twice older than you.", said Ankit. Ankit went to Kitchen to drink water. While Ankit was in Kitchen, Tejas took apples from Ankit's pile equal to Ankit's age.
Who have more apples now?

Answer
At the end, Ankit and Tejas, both have the same number of apples.

Let's assume that initially Tejas got N apples and his age is T years. Hence, initially Ankit got 3N apples and his age is 2T years.

Operation	Ankit's Apples	Tejas's Apples
Initially	3N	N
Ankit gave T apples to Tejas (equals age of Tejas)	3N - T	N + T
Tejas took 2T apples from Ankit's pile (equals age of Ankit)	3N - 3T	N + 3T

It is given that after Ankit gave T apples to Tejas, Ankit had twice as many apples as Tejas had.
3N - T = 2*(N + T)
3N - T = 2N + 2T
N = 3T

From the table, at the end Ankit have (3N - 3T) apples and Tejas have (N + 3T) apples.
Substituting N = 3T, we get
Ankit's apples = 3N - 3T = 9T - 3T = 6T
Tejas's apples = N + 3T = 3T + 3T = 6T

Thus, at the end Ankit and Tejas, both have the same number of apples.

On evey Sunday Amar, Akbar and Anthony lunch together at Preetam-Da-Dhaba where they order lassi based on following facts.
Unless neither Amar nor Akbar have lassi, Anthony must have it.
If Amar does not have lassi, either Akbar or Anthony or both have it.
Anthony has lassi only if either Amar or Akbar or both have it.
Akbar and Anthony never have lassi together.
Who order(s) lassi?

Answer
Amar and Anthony both have lassi whereas Akbar never does.

Fact (2) can be alternatively stated that "either Amar or Akbar or Anthony must have lassi".

From Fact (3), it can be infered that either Amar or Akbar must have lassi.

Now, from Fact (1), it is apparent that Anthony too must have lassi. But according to Fact (4), Akbar cannot have lassi when Anthony does.

At what time immediately prior to Six O'clock the hands of the clock are exactly opposite to each other. Give the exact time in hours, minutes and seconds.

Answer
It is obvious that between 5 O'clock and 6 O'clock the hands will not be exactly opposite to each other. It is also obvious that the hands will be opposite to each other just before 5 O'clock. Now to find exact time:

The hour hand moves 1 degree for every 12 degrees that the minute hand moves. Let the hour hand be X degree away from 5 O'clock. Therefore the minute hand is 12X degree away from 12 O'clock.

Therefore solving for X

Angle between minute hand and 12 O'clock + Angle between 12 O'clock and 4 O'clock + Angle between 4 O'clock and hour hand = 180
12X + 120 + (30-X) = 180
11X = 30
Hence X = 30/11 degrees
(hour hand is X degree away from 5 O'clock)

Now each degree the hour hand moves is 2 minutes.

Therefore minutes are
= 2 * 30/11
= 60/11
= 5.45 (means 5 minutes 27.16 seconds)

Therefore the exact time at which the hands are opposite to each other is
= 4 hrs. 54 min. 32.74 seconds

Ali Baba had four sons, to whom he bequeathed his 39 camels, with the proviso that the legacy be divided in the following way :
The oldest son was to receive one half the property, the next a quarter, the third an eighth and the youngest one tenth. The four brothers were at a loss as how to divide the inheritance among themselves without cutting up a camel, until a stranger appeared upon the scene.
Dismounting from his camel, he asked if he might help, for he knew just what to do. The brothers gratefully accepted his offer.

Adding his own camel to Ali Baba's 39, he divided the 40 as per the will. The oldest son received 20, the next 10, the third 5 and the youngest 4. One camel remained : this was his, which he mounted and rode away.
Scratching their heads in amazement, they started calculating. The oldest thought : is not 20 greater than the half of 39? Someone must have received less than his proper share ! But each brother discovered that he had received more than his due. How is it possible?

Answer
They took their percentages from 40 and not from 39, so they got more than their share.

The oldest son got 1/2 of 40 = 20 which is 0.5 more
The second son got 1/4 of 40 = 10 which is 0.25 more
The third son got 1/8 of 40 = 5 which is 0.125 more
The youngest son got 1/10 of 40 = 4 which is 0.1 more

And the stranger got 1/40 of 40 = 1 which is 0.025 more (As he is not supposed to get anything)

All these fractions add to = 0.5 + 0.25 + 0.125 + 0.1 + 0.025 = 1 which stranger took away.

There is a family party consisting of two fathers, two mothers, two sons, one father-in-law, one mother-in-law, one daughter-in-law, one grandfather, one grandmother and one grandson. What is the minimum number of persons required so that this is possible?

Answer
There are total 2 couples and a son. Grandfather and Grand mother, their son and his wife and again their son. So total 5 people.

Grandfather, Grandmother
|
|
Son, wife
|
|
Son

A man went into a fast food restaurant and ate a meal costing Rs. 105, giving the accountant a Rs. 500 note. He kept the change, came back a few minutes later and had some food packed for his girl friend. He gave the accountant a Rs. 100 note and received Rs. 20 in change. Later the bank told the accountant that both the Rs. 500 and the Rs. 100 notes were counterfeit.
How much money did the restaurant lose? Ignore the profit of the food restaurant.

Answer
He lost Rs.600

First time restaurant has given food worth Rs.105 and Rs. 395 change. Similarly second time, food worth Rs.80 and Rs.20 change. Here, we are not considering food restaurant profits.

```
  S L I D E
- D E A N
---------
  3 6 5 1
```

Each of seven digits from 0-9 are represented by a different letter above such that the subtraction is true.
What word represents 3651?

Answer
3651 represents LENS.

Let's assign possible values to each letter and then use trial-n-error.
S must be 1.

Then D (under L) must be greater than 5. If D is 6, then L is 0. But then A must be 0 or 1 which is impossible. Hence, the possible values of D are 7, 8 or 9.

N must be E + 1. Also, D must be A + 5 as the possible values of D are 7, 8 or 9, D can not be (10+A) + 5.

Now using trial-n-error, we get S=1, I=2, L=3, A=4, N=5, E=6 and D=9

```
  S L I D E       1 3 2 9 6
- D E A N       - 9 6 4 5
-------------   -------------
  3 6 5 1         L E N S
```

Hence, 3651 represents LENS.

Adam, Burzin, Clark and Edmund each live in an apartment. Their apartments are arranged in a row numbered 1 to 4 from left to right. Also, one of them is the landlord.
If Clark's apartment is not next to Burzin's apartment, then the landlord is Adam and lives in apartment 1.
If Adam's apartment is right of Clark's apartment, then the landlord is Edmund and lives in apartment 4.
If Burzin's apartment is not next to Edmund's apartment, then the landlord is Clark and lives in apartment 3.
If Edmund's apartment is right of Adam's apartment, then the landlord is Burzin and lives in apartment 2.
Who is the landlord?

Answer
Clark is the landlord.

Assume each statement true, one at a time and see that no other statement is contradicted.

Let's assume that Statement (1) is true. Then, Adam is the landlord and lives in apartment 1. Also, other three's apartments will be on the right of his apartment - which contradicts Statement (4) i.e. If Edmund's apartment is right of Adam's apartment, then the landlord is

Burzin. Thus, Adam is not the landlord.

Let's assume that Statement (2) is true. Then, Edmund is the landlord and lives in apartment 4. Also, other three's apartments will be on the left of his apartment - which again contradicts Statement (4) i.e. If Edmund's apartment is right of Adam's apartment, then the landlord is Burzin. Thus, Edmund is not the landlord either.

Let's assume that Statement (3) is true. Then, Clark is the landlord and lives in apartment 3. It satisfies all the statements for
(1) Adam - (2) Edmund - (3) Clark - (4) Burzin

Hence, Clark is the landlord.

Similarly, you can assume Statement (4) true and find out that it also contradicts.

B, J and P are related to each other.
Among the three are B's legal spouse, J's sibling and P's sister-in-law.
B's legal spouse and J's sibling are of the same sex.
Who is the married man?

Answer
J is the married man.

Note that a person's sister-in-law may be the wife of that person's brother or the sister of that person's spouse.

There are 2 cases:
If B's legal spouse is J, then J's sibling must be P and P's sister-in-law must be B.
If B's legal spouse is P, then P's sister-in-law must be J and J's sibling must be B.
It is given that B's legal spouse and J's sibling are of the same sex. Also, it is obvious that P's sister-in-law is female. Then, B's legal spouse and J's sibling both must be males.

	B's spouse (male)	J's sibling (male)	P's sister-in-law (female)
Case I	J	P	B
Case II	P	B	J

Case II is not possible as B & P are married to each other and both are male. Hence, J is the married man.

A polygon has 1325 diagonals. How many vertices does it have?

Answer
The formula to find number of diagonals (D) given total number of vertices or sides (N) is

$$D = \frac{N * (N - 3)}{2}$$

Using the formula, we get
1325 * 2 = N * (N - 3)
N^2 - 3N - 2650 = 0

Solving the quadratic equation, we get N = 53 or -50

It is obvious that answer is 53 as number of vertices can not be negative.

Alternatively, you can derive the formula as triange has 0 diagonals, quadrangel has 2, pentagon has 5, hexagon has 9 and so on.....

Hence the series is 0, 0, 0, 2, 5, 9, 14, ... (as diagram with 1,2 or 3 vertices will have 0 diagonals).

Using the series one can arrive to the formula given above.

A cube is made of a white material, but the exterior is painted black.
If the cube is cut into 125 smaller cubes of exactly the same size, how many of the cubes will have atleast 2 of their sides painted black?

Answer
44

36 of the cubes have EXACTLY 2 of their sides painted black, but because a cube with 3 of its sides painted black has 2 of its sides painted black, you must also include the corner cubes. This was a trick question, but hopefully the title of the puzzle tipped you off to this.

Imagine a triangle of coins on a table so that the first row has one coin in it and the second row has two coins in it and so on. If you can only move one coin at a time, how many moves does it take to make the triangle point the other way?
For a triangle with two row it is one, for a triangle with three rows it is two, for a triangle with four rows it is three.
For a traingle with five rows is it four?

Answer
It takes 5 moves to make the triangle with 5 rows point the other way.

0 = a coin that has not been moved.
X = the old position of the moved coin
8 = the new position of the moved coin.

_____X
_____X X
____8 0 0 0 8
_____0 0 0 0
____X 0 0 0 X
_____8 8
_____8

For traingle of any number of rows, the optimal number of moves can be achieved by moving the vertically symmetrical coins i.e. by moving same number of coins from bottom left and right, and remaining coins from the top.

For a triangle with an odd number of rows, the total moves require are :
$(N^2/4) - (N-4)$ Where N = 4, 6, 8, 10, ...

For a triangle with even number of rows, the total moves require are :
$((N^2-1)/4) - (N-4)$ Where N = 5, 7, 9, 11, ...

A man is going to an Antique Car auction. All purchases must be paid for in cash. He goes to the bank and draws out $25,000.
Since the man does not want to be seen carrying that much money, he places it in 15 evelopes numbered 1 through 15. Each envelope contains the least number of bills possible of any available US currency (i.e. no two tens in place of a twenty).
At the auction he makes a successful bid of $8322 for a car. He hands the auctioneer envelopes number(s) 2, 8, and 14. After opening the envelopes the auctioneer finds exactly the right amount.
How many ones did the auctioneer find in the envelopes?

Answer
Each envelope contains the money equal to the 2 raised to the envelope number minus 1. The sentence "Each envelope contains the least number of bills possible of any available US currency" is only to misguide you. This is always possible for any amount !!!

One more thing to notice here is that the man must have placed money in envelopes in such a way that if he bids for any amount less than $25000, he should be able to pick them in terms of envelopes.

First envelope contains, 2^0 = $1
Second envelope contains, 2^1 = $2
Third envelope contains, 2^2 = $4
Fourth envelope contains, 2^3 = $8 and so on...

Hence the amount in envelopes are $1, $2, $4, $8, $16, $32, $64, $128, $256, $512, $1024, $2048, $4096, $8192, $8617

Last envelope (No. 15) contains only $8617 as total amount is only $25000.

Now as he bids for $8322 and gives envelope number 2, 8 and 14 which contains $2, $128 and $8192 respectively.

Envelope No 2 conrains one $2 bill
Envelope No 8 conrains one $100 bill, one $20 bill, one $5 bill, one $2 bill and one $1 bill
Envelope No 14 conrains eighty-one $100 bill, one $50 bill, four $10 bill and one $2 bill

Hence the auctioneer will find one $1 bill in the envelopes.

The minute and the hour hand of a watch meet every 65 minutes.
How much does the watch lose or gain time and by how much?

Answer
The minute and the hour hand meet 11 times in 12 hours in normal watch i.e. they meet after every
= (12 * 60) / 11 minutes
= 65.45 minutes
= 65 minutes 27.16 seconds
But in our case they meet after every 65 minutes means the watch is gaining 27.16 seconds.

There is a number that is 5 times the sum of its digits. What is this number? Answer is not 0.

Answer
The number is 45, simply because
45 = 5 * (4 + 5)
How does one find this number?

Let T be the digit in the tens place and U be the digit in the units place. Then, the number is 10*T + U, and the sum of its digits is T + U.

The following equation can be readily written:
10*T + U = 5*(T + U) or
10*T + U = 5*T + 5*U or
5*T = 4*U

Thus, T / U = 4 / 5

Since T and U are digits, T must be 4 and U must be 5.

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 solds out?

Answer
Total no of balls = 5 + 7 + 14 + 16 + 18 + 29 = 89

Total number of balls are odd. Also, same number of red balls and blue balls are left out after selling one box. So it is obvious that the box with odd number of balls in it is sold out i.e. 5, 7 or 29.

Now using trial and error method,
(89-29) /2 = 60/2 = 30 and
14 + 16 = 5 + 7 + 18 = 30
So box with 29 balls is sold out.

Ekta got chocolates to give her friends on her Birthday. If she gives 3 chocolates to each friend, one friend will get only 2 chocolates. Also, if she gives 2 chocolates to each friends, she will left with 15 chocolates.
How many chocolates Ekta got on her Birthday? and how many friends are there?

Answer
47 Chocolates and 16 Friends

Let's assume that there are total C chocolates and F friends.

According to first case, if she gives 3 chocolates to each friend, one friend will get only 2 chocolates.
3*(F - 1) + 2 = C

Similarly, if she gives 2 chocolates to each friends, she will left with 15 chocolates.
2*F + 15 = C

Solving above 2 equations, F = 16 and C = 47. Hence, Ekta got 47 chocolates and 16 friends

Pooja and Esha met each other after long time. In the course of their conversation, Pooja asked Esha her age. Esha replied, "If you reverse my age, you will get my husbund's age. He is of course older than me. Also, the difference between our age is 1/11th of the sum of our age." Can you help out Pooja in finding Esha's age?

Answer
Esha's age is 45 years.

Assume that Esha's age is 10X+Y years. Hence, her hunsbands age is (10Y + X) years.

It is given that difference between their age is 1/11th of the sum of their age. Hence,
[(10Y + X) - (10X + Y)] = (1/11)[(10Y + X) + (10X + Y)]
(9Y - 9X) = (1/11)(11X + 11Y)
9Y - 9X = X + Y
8Y = 10X
4Y = 5X

Hence, the possible values are X=4, Y=5 and Esha's age is 45 years.

A fish had a tail as long as its head plus a quarter the lenght of its body. Its body was three-quarters of its total length. Its head was 4 inches long. What was the length of the fish?

The fish is 128 inches long.

It is obvious that the lenght of the fish is the summation of lenghts of the head, the body and the tail. Hence,
Fish (F) = Head (H) + Body (B) + Tail (T)

But it is given that the lenght of the head is 4 inches i.e. H = 4. The body is three-quarters of its total length i.e. B = (3/4)*F. And the tail is its head plus a quarter the lenght of its body i.e. T = H + B/4. Thus, the equation is
F = H + B + T
F = 4 + (3/4)*F + H + B/4
F = 4 + (3/4)*F + 4 + (1/4)*(3/4)*F
F = 8 + (15/16)*F
(1/16)*F = 8
F = 128 inches

Thus, the fish is 128 inches long.

Assume that you have just heard of a scandal and you are the first one to know. You pass it on to four person in a matter of 30 minutes. Each of these four in turn passes it to four other persons in the next 30 minutes and so on. How long it will take for everybody in the World to get to know the scandal?
Assume that nobody hears it more than once and the population of the World is approximately 5.6 billions.

Answer
Everybody in the World will get to know the scandal in 8 hours.

You came to know of a scandal and you passed it on to 4 persons in 30 minutes. So total (1+4) 5 persons would know about it in 30 minutes.

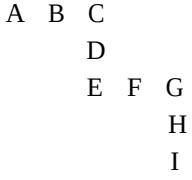
By the end of one hour, 16 more persons would know about it. So total of (1+4+16) 21 persons would know about it in one hour.

Similarly, the other (1+4+16+64) persons would have know about it in one and a half hours. (1+4+16+64+256) persons would have know about it in two hours and so on...

It can be deduced that the terms of the above series are the power of 4 i.e. 4^0, 4^1, 4^2, 4^3 and so on upto (2N+1) terms. Also, the last term would be 4^2N where N is the number of hours.

Sum of the above mentioned series = [4^(2N+1)-1]/3

The sum of the series must be 5.6 billions. Hence, equating the sum of the series with 5.6 billions, we get N=8 hours.
Scandals travel FAST !!!



Each of the digits from 1 to 9 is represented by a different letter above. Also, A + B + C = C + D + E = E + F + G = G + H + I = 13
Which digit does E represent?

Answer
E represents 4.

Find out all possible groups of three different numbers that add up to 13 and arrange them according to given condition.

If one number is 9, it must go with 1 and 3.
If one number is 8, it must go with either 1 and 4 or 2 and 3.
If one number is 7, it must go with either 1 and 5 or 2 and 4.
If one number is 6, it must go with either 2 and 5 or 3 and 4.

It is clear that 9 must go with 1 and 3. Also, no digit may be used in more than two sums. Hence, there are 2 cases:
Case I: If 8 goes with 1 and 4, then 7 goes with 2 and 4, then 6 goes with 2 and 5.
Case II: If 8 goes with 2 and 3, then 7 goes with 2 and 4, then 6 goes with 3 and 4.

But in case II, 3 is used in three sums. Hence, Case I is correct. And the possible arrangements are:

```
9 3 1         5 6 2
    8             7
    4 7 2         4 8 1
      6             3
      5             9
```

Thus, E must be 4.

Gomzi has 3 timepieces in his house - a wall clock, an alarm clock and a wristwatch. The wristwatch is always accurate, whereas the wall clock gains 2 minutes everyday and the alarm clock loses 2 minutes everyday.
At exactly midnight last night, all three watches were showing the same time.
If today is 25 July 2003, then on which date all three clocks will show the same time again?

Answer
All three clocks will show the same time again on midnight between 19 July 2004 and 20 July 2004.

A clock finishes on round in 12*60 i.e. 720 minutes.

If a clock gains 2 minutes everyday, then it would be 720 minutes ahead after 360 days. Thus, after 360 days, it will show the same time again.

Similary, if a clock loses 2 minutes everyday, then it would be 720 minutes behind after 360 days. Thus, after 360 days, it will show the same time again.

Thus, after 360 days all three clocks will show the same time again i.e. midnight between 19 July 2004 and 20 July 2004.

You have 9 marbles. 8 marbles weigh 1 ounce each, & one marble weighs 1.5 ounces. You are unable to determine which is the heavier marble by looking at them. You have a weighing scale that consists of 2 pans, but the scale is only good for 2 total weighings. How can you determine which marble is the heaviest one using the scale & in 2 weighings?

Answer
Divide 9 marbles into 3 groups of 3 marbles each.

Take any 2 groups and place them on each pan. If they balance, remove the marbles from the pans, & place any 2 of the marbles from the remaining unweighed group on the pans, 1 on each pan.

If one is heavier, it is the heavier marble, but if they balance, the remaining unweighed marble is the heavier one.

If your first weighing does not balance, remove the marbles from the lighter pan, & place 1 marble on each pan from the heavier pan. The heavier 1 is the 1.5 ounce marble, but if they balance, then the marble from the heavy pan from the first weighing that was not weighed in the second weighing is the heavy 1.

Once a week a wagon driver leaves his hut and drives his wagon to the river dock to pick up supplies for his town. At 4:05 PM, one-fifth of the way to the dock, he passes the Temple. At 4:15 PM, one-third of the way, he passes the Preetam-Da-Dhabaa.
At what time does he reached the dock?

Answer
5:05 PM

At 4:05 PM, the wagon driver passes the temple, one-fifth of the way to the dock. Also, at 4:15 PM, he passes the Preetam-Da-Dhabaa, one-third of the way. Thus, he travels 2/15 (1/3 - 1/5) of the distance in 10 minutes.

At 4:15 PM, he has already travelled 1/3 of the distance. Thus 2/3 of the way is remaining, which can be travelled in
= ((2/3) * 10) / (2/15)
= 50 minutes

At 4:15, he was at Preetam-Da-Dhabaa and remaining way will take 50 more minutes. Hence, the driver will reach at 5:05 PM to the dock.

Four prisoners escape from a prison.
The prisoners, Mr. East, Mr. West, Mr. South, Mr. North head towards different directions after escaping.
The following information of their escape was supplied:
The escape routes were North Road, South Road, East Road and West Road

None of the prisoners took the road which was their namesake
Mr. East did not take the South Road
Mr.West did not the South Road
The West Road was not taken by Mr. East
What road did each of the prisoners take to make their escape

Answer
Put all the given information into the table structure as follow:

	North Road	South Road	East Road	West Road
Mr. North	No			
Mr. South		No		
Mr. East		No	No	No
Mr. West		No		No

Now from table, two things are obvious and they are:
Mr.North took the South Road
Mr.East took the North Road
Put this information into the table, Also keep in mind that the prisoners head towards different directions after escaping.

	North Road	South Road	East Road	West Road
Mr. North	No	YES	No	No
Mr. South	No	No		
Mr. East	YES	No	No	No
Mr. West	No	No		No

Now from the table:
Mr.West took the East Road
Mr.South took the West Road
So the answer is:
Mr.North took the South Road
Mr.South took the West Road
Mr.East took the North Road
Mr.West took the East Road

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

Answer
It is Afternoon and A can be Salman or Shahrukh. If A is Salman, he is speaking truth. If A is Shahrukh, he is lying.

Want to confirm it? Consider following 4 possible answers and check for its truthness individually.
It is Morning and A is Shahrukh
It is Morning and A is Salman
It is Afternoon and A is Shahrukh

It is Afternoon and A is Salman

A rich man died. In his will, he has divided his gold coins among his 5 sons, 5 daughters and a manager.
According to his will: First give one coin to manager. 1/5th of the remaining to the elder son. Now give one coin to the manager and 1/5th of the remaining to second son and so on..... After giving coins to 5th son, divided the remaining coins among five daughters equally.
All should get full coins. Find the minimum number of coins he has?

Answer
We tried to find out some simple mathematical method and finally we wrote small C program to find out the answer. The answer is 3121 coins.

Here is the breakup:
First son = 624 coins
Second son = 499 coins
Third son = 399 coins
Forth son = 319 coins
Fifth son = 255 coins
Daughters = 204 each
Manager = 5 coins

There is a grid of 20 squares by 10 squares. How many different rectangles are possible? Note that square is a rectangle.

Answer
11550

The Generic solution to this is:
Total number of rectangles = (Summation of row numbers) * (Summation of column numbers)

Here there are 20 rows and 10 columns or vice versa. Hence, total possible rectangles
= (20 + 19 + 18 + 17 + 16 + ... + 3 + 2 + 1) * (10 + 9 +8 + 7 + ... + 3 + 2 + 1)
= (210) * (55)
= 11550

Hence, total 11,550 different rectangles are possible.

If you don't believe it, try formula on some smaller grids like 4x2, 3x2, 3x3 etc...
If A+B=C, D-C=A and E-B=C, then what does D+F stands for? Provide your answer in letter terms as well as in number terms.

Answer
J or 10

A simple one.

Assume that each character represents the number equivalent to the position in the alphabet

i.e. A = 1, B = 2, C = 3, D = 4 and so on. Now let's check our assumption.

A + B = C i.e. 1 + 2 = 3
D - C = A i.e. 4 - 3 = 1
E - B = C i.e. 5 - 2 = 3

Thus, our assumption was Correct. Hence, D + F = J i.e. 4 + 6 = 10

A woman took a certain number of eggs to the market and sold some of them.
The next day, through the industry of her hens, the number left over had been doubled, and she sold the same number as the previous day.

On the third day the new remainder was tripled, and she sold the same number as before.
On the zourth day the remainder was quadrupled, and her sales the same as before.
On the fifth day what had been left over were quintupled, yet she sold exactly the same as on all the previous occasions and so disposed of her entire stock.
What is the smallest number of eggs she could have taken to market the first day, and how many did she sell daily? Note that the answer is not zero.

Answer
She took 103 eggs to market on the first day and sold 60 eggs everyday.

Let's assume that she had N eggs on the first day and she sold X eggs everyday. Putting down the given information in the table as follow.

Days	Eggs at the start of the day	Eggs Sold	Eggs Remaining
Day 1	N	X	N-X
Day 2	2N-2X	X	2N-3X
Day 3	6N-9X	X	6N-10X
Day 4	24N-40X	X	24N-41X
Day 5	120N-205X	X	120N-206X

It is given that she disposed of her entire stock on the fifth day. But from the table above, the number of eggs remaining are (120N-206X). Hence,
120N - 206X = 0
120N = 206X
60N = 103X

The smallest value of N and X must be 103 and 60 respectively. Hence, she took 103 eggs to market on the first day and sold 60 eggs everyday.

John lives in "Friends Society" where all the houses are in a row and are numbered sequentially starting from 1. His house number is 109.
Jessy lives in the same society. All the house numbers on the left side of Jessy's house add up exactly the same as all the house numbers on the right side of her house.
What is the number of Jessy's house? Find the minimal possible answer.

Answer
There are 288 houses and Jessy's house number is 204.

Let's assume that in the "Friends Society" there are total N houses numbered from 1 to N and Jessy's house number is X.

Now it is given that all the house numbers on the left side of Jessy's house add up exactly the same as all the house numbers on the right side of her house. Hence,
1 + 2 + 3 + ... + (X-1) = (X+1) + (X+2) + (X+3) + ... + N

Both the sides of the above equations are in A.P. Hence, using A.P. summation formaula,

[(X-1)/2][2*(1) + (X-1-1)] = [(N-X)/2][2*(X+1) + (N-X-1)]
[X-1][(2) + (X-2)] = [N-X][(2X+2) + (N-X-1)]
(X-1)(X) = (N-X)(N+X+1)
X^2 - X = N^2 + NX + N - NX - X^2 - X
X^2 = N^2 + N - X^2
$2X^2$ = N^2 + N
X^2 = (N^2 + N)/2
X^2 = N(N+1)/2

Now, using Trial and Error method to find values of N and X such that above equation is satisfied, we get
N = 8, X = 6
N = 49, X = 35
N = 288, X = 204
N = 1681, X = 1189
N = 9800, X = 6930
But we require minimal possible answer and it is given that John's house number is 109. It means that there are atleast 109 houses. Hence, first two are not possible. And the answer is : there are 288 houses and Jessy's house number is 204.

Makayla had $1.19 in change. None of the coins was a dollar.
Nicole ask her for change for a dollar, but Makayla could not make change.
What coins did she have?

Answer
As it is given that Makayla had $1.19, it means she would have four pennies. Now, the remaining $1.15 in coins must not add up for exactly a dollar. Therefore she would not have 4 quarters or 2 quarters and 5 dimes. But she would have either 1 quarter or 3 quarters. Hence, there are 2 solutions.

Solution I
1 Quarter, 9 Dimes, 4 Pennies (0.25 + 0.90 + 0.04 = $1.19)

Solution II
3 Quarters, 4 Dimes, 4 Pennies (0.75 + 0.40 + 0.04 = $1.19)
A group of friends went on a holiday to a hill station. It rained for 13 days. But when it rained in the morning, the afternoon was lovely. And when it rained in the afternoon, the day was preceded by clear morning.

Altogether there were 11 very nice mornings and 12 very nice afternoons. How many days did their holiday last?

Answer
The holiday last for 18 days.

Let's assume the number of days as follows:
Rain in the morning and lovely afternoon = X days
Clear morning and rain in the afternoon = Y days
No rain in the morning and in the afternoon = Z days

Number of days with rain = X + Y = 13 days
Number of days with clear mornings = Y + Z = 11 days
Number of days with clear afternoons = X + Z = 12 days

Solving above 3 equations, we get X = 7, Y = 6 and Z = 5
Hence, total number of days on holiday = 18 days

Major Jasbir is forming five-person Special Task Group. The group must contain one leader, two bomb-experts and two soldiers.
P, Q and R are possible bomb-experts. R, S and T are possible leaders. U, V and W are possible soldiers. Also, P and R prefers to work with each other in the same team. T prefers to work only if V works. How many different possible Groups, Major Jasbir can make?

Answer
Major Jasbir can make 8 different possible groups.

As 2 bomb-experts to be selected from the given 3 and also P & R prefers to work together, PR must be there in all the possible Groups. Also, T prefers to work only if V works. It doesn't mean that V won't work without T.

Hence, possible groups are:
PR - S - UV
PR - S - VW
PR - S - WU

PR - T - UV
PR - T - VW

PQ - R - UV
PQ - R - VW
PQ - R - WU

Hence, there 8 different groups are possible.

The secret agent X emailed some code to his head office. They are "RADAR, LEVEL, ROTOR, REDIVIDER, MOTOR". But four of these five words have something in common and one is fake.

Can you tell which one is fake? Ignore the fact that four of the code-words are of the same length.

Answer
The fake code-word is MOTOR.
All the code-words except MOTOR are Palindromes.

In the village called TALAJA, only three TV channels are available - Moon Plus, Mony and Mee TV. Out of 4000 TV viewers in the village, 1500 watch Moon TV, 2000 watch Mony and 2500 watch Mee TV. Amongst these, 500 viewers watch Moon Plus and Mony, 800 watch Moon Plus and Mee TV, and 1000 watch Mony and Mee TV.
How many viewers watch all three channels?

Answer
300 viewers watch all three channels.

Let's assume that total X viewers watch all three channels.

total viewers who watch only Moon Plus and Mony = 500-X
total viewers who watch only Moon Plus and Mee TV = 800-X
total viewers who watch only Mony and Mee TV = 1000-X

total viewers who watch only Moon Plus
= 1500 - (500-X) - (800-X) - X
= 200 + X

total viewers who watch only Mony
= 2000 - (500-X) - (1000-X) - X
= 500 + X

total viewers who watch only Mee TV
= 2500 - (1000-X) - (800-X) - X
= 700 + X

We know that total viewers are 4000. Summing up all 7 values,
X + (500 - X) + (800 - X) + (1000 - X) + (200 + X) + (500 + X) + (700 + X) = 4000
X + 3700 = 4000
X = 300

Hence, total 300 viewers watch all three channels.
A man was looking at a portrait. Someone asked him, "Whose picture are you looking at?"

He replied, pointing at the portrait: "Brothers and sisters have I none, but this man's son is my father's son."

Now whose picture is the man looking at?

Answer
The man is looking at his FATHER's portrait.

"my father's son" is the man himself as he do not have any brothers and sisters. So the statement reduces to "this man's son is myself." Now it is clear that the portrait is of his father.

Given the following facts:
Dinesh is younger than Farukh and older than Gurmit.
Jatin is younger than Chandu and older than Eshrat.
Amit is younger than Irfan and older than Chandu.
Farukh is younger than Bhavin and older than Hemant.
Irfan is younger than Gurmit and older than Jatin.
Hemant is older than Gurmit.
Who is the Youngest?

Answer
Eshrat is the youngest.

Discard whoever are older than someone.

From (1) Gurmit is younger than Dinesh and Farukh.
From (5) Jatin is younger than Irfan and Gurmit.
From (2) Eshrat is younger than Jatin and Chandu.

From above 3 deductions, Eshrat is younger than Dinesh, Farukh, Irfan, Gurmit, Jatin and Chandu.

Also,
From (3) Chandu is younger than Amit and Irfan.
From (4) Hemant is younger than Farukh and Bhavin.
From (6) Gurmit is younger than Hemant.

From above 3 deductions, Gurmit is younger than Farukh, Bhavin and Hemant. Also, Chandu is younger than Amit and Irfan. But as seen earlier, Eshrat is younger than Gurmit and Chandu. Hence, Eshrat is the youngest.

Last Saturday Milan went for the late night show and came late. In the morning family members asked him which movie did he see. He gave different answers to everyone.
He told to his father that he had gone to see MONEY.
According to his mom, he saw either JOHNY or BABLU.
His elder brother came to know that he saw BHABI.
To his sister, he told ROBOT.
And his grandpa heard that he saw BUNNY.
Thus, Milan gave six movie names, all five letter words. But he saw some other movie with five letter word. Moreover, each of the six movie names mentioned above has exactly two letters common with the movie he saw. (with the same positions)
Can you tell which movie did Milan see?

Answer
Milan saw BOBBY.

The six movie names are - MONEY, JOHNY, BABLU, BHABI, ROBOT and BUNNY.

Compare MONEY and JOHNY. They have O common at the second place and Y common at the fifth place. Also, they can't have two different letters each, common with the required movie as the letters in remaining three places are all different. Thus, the required movie must have either O at the second place or Y at the fifth place or both.

Similarly, comparing JOHNY and BUNNY - the required movie must have either N at the fourth place or Y at the fifth place or both. Also, comparing MONEY and BUNNY - the required movie must have either N at the third place or Y at the fifth place or both.

From the above 3 deduction, either Y is at fifth place or O is at the second place and N is at the third & fourth place. The later combination is not possible as BABLU, BHABI & ROBOT will need at least 3 other letters which makes the required movie 6 letter long. Hence, the required movie must have Y at the fifth place.

Now Y is not there in BABLU and BHABI at the fifth place and they have only B common at the first place. Hence, B must be the first letter.

As B is at the first place and Y is at the fifth place and every movie has exactly 2 letters common with the required movie. From BUNNY, the required movie do not have U at the second place and N at the third and fourth place. Now looking at JOHNY and MONEY, they must have O common at the second place.

Using the same kind of arguments for BABLU, BHABI and ROBOT, we can conclude that Milan saw BOBBY.

Jim lies a lot. He tells the truth on only one day in a week.
One day he said: "I lie on Mondays and Tuesdays."
The next day he said: "Today is either Sunday, Saturday or Thursday."
The next day he said: "I lie on Fridays and Wednesdays."
On which day of the week does Jim tell the truth?

Answer
Jim tells the truth on Tuesday.

As Jim tells truth only on one day in a week, his statement on day 1 and day 3 both can not be false. Otherwise he tells truth on more than one days in a week. Also, all three statements are mad on three consecutive days, statement made on day 1 and day 3 both can not be true. Thus, either the statement made on day 1 or day 3 is true and other is false. Also, the statement made on day 2 must be false i.e. day 1 is not Saturday, Friday or Wednesday.

Let's assume that the statement 1 is true. Then from the statement 3, day 1 must be either Friday or Wednesday. But it is already deduced that day 1 is not Saturday, Friday or Wednesday.

Hence, the statement made on day 1 is false and the last statement is true. then from the statement 1, day 3 must be either Monday or Tuesday. But it is already deduced that day 1 can not be Saturday i.e. day 3 can't be Monday. Hence, Jim tells the truth on Tuesday.

Consider a chessboard with a single Rook. A Rook can move any number of square sideways/forward, but not diagonally. What is the minimum number of moves the Rook needs to make, in order to pass over all the squares on the chessboard and return to the original position?

Answer
16 moves

As a Rook can move any number of square sideways/forward, but not diagonally and there are 8 rows and 8 columns on the chessboard; the Rook needs minimum 16 moves to pass over all the squares and return to the original position.
A farmer needs 8 gallons of water. He has only three unmared buckets, two 6 gallon and one 11 gallon bucket.
How can he collect 8 gallons of water using three unmarked buckets? Provide solution with minimal water wastage.

Answer
Here is the solution with 10 gallon water wastage.

OPERATIONS	6	6	11
Fill 6 gallon bucket with water	6	0	0
Empty 6 gallon bucket into 11 gallon bucket	0	0	6
Fill 6 gallon bucket with water	6	0	6
Fill 11 gallon bucket to full using filled 6 gallon bucket. This will leave 1 gallon water in 6 gallon bucket	1	0	11
Empty 11 gallon bucket into second 6 gallon bucket.	1	6	5
Empty 11 gallon bucket - wastage of 5 gallon water	1	6	0
Empty second 6 gallon bucket into 11 gallon bucket	1	0	6
Fill seccond 6 gallon bucket with water	1	6	6
Fill 11 gallon bucket to full using filled second 6 gallon bucket. This will leave 1 gallon water in second 6 gallon bucket	1	1	11
Fill first 6 gallon bucket with 1 gallon water which is in second 6 gallon bucket	2	0	11
Empty 11 gallon bucket into second 6 gallon bucket.	2	6	5
Empty 11 gallon bucket - wastage of 5 gallon water	2	6	0
Fill 11 gallon bucket with water in both the 6 gallon buckets	0	0	11

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 are different?

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

Jack and Jill are playing cards for a stake of $1 a game. At the end of the evening, Jack has won 3 games and Jill has won $3. How many games did they play?

Answer
They played total of 9 games. Jack won 3 games and Jill won 6 games.

If Jack has won three games and Jill has won $3, she lost a dollar for each loss, therefore she has won 6 and lost 3 to make $3 and he won the other 3 that she lost!

Sam and Mala have a conversation.
Sam says I am certainly not over 40
Mala says I am 38 and you are atleast 5 years older than me
Now Sam says you are atleast 39
All the statements by the two are false. How old are they really?

Answer
Sam is 41 and Mala is 37.

Let's invert the teaser and read it like this :
Sam says I am certainly over 40
Mala says I am not 38 and you are atmost 4 years older than me
Now Sam says you are atmost 38
From first statement it is clear that Sam is over 40. Also, from next 2 statements it is clear that Mala is less then 38. Hence the possibilities are :
Sam = 41, 42, 43, 44, 45, ...
Mala = 37, 36, 35, 34, 33, ...

It also says that the difference between their age is maximum 4 years. Hence, there is only one possible pair i.e. 41 and 37, all other combination have differences more then 4.

Hence the answer - Sam is 41 and Mala is 37.

A person travels on a cycle from home to church on a straight road with wind against him. He took 4 hours to reach there. On the way back to the home, he took 3 hours to reach as wind was in the same direction. If there is no wind, how much time does he take to travel from home to church?

Answer
Let distance between home and church is D.

A person took 4 hours to reach church. So speed while travelling towards church is D/4.

Similarly, he took 3 hours to reach home. So speed while coming back is D/3.

There is a speed difference of 7*D/12, which is the wind helping person in 1 direction, & slowing him in the other direction. Average the 2 speeds, & you have the speed that person can travel in no wind, which is 7*D/24.

Hence, person will take D / (7*D/24) hours to travel distance D which is 24/7 hours.
Answer is 3 hours 25 minutes 42 seconds

There are N secret agents each know a different piece of secret information. They can telephone each other and exchange all the information they know. After the telephone call, they both know anything that either of them knew before the call.
What are the minimum number of telephone calls needed so that all of the them know everything?

Answer
(2N - 3) telephone calls, for N = 2,3
(2N - 4) telephone calls, for N > 3
Divide the N secret agents into two groups. If N is odd, one group will contain one extra agent.

Consider first group: agent 1 will call up agent 2, agent 2 will call up agent 3 and so on. Similarly in second group, agent 1 will call up agent 2, agent 2 will call up agent 3 and so on. After (N - 2) calls, two agents in each the group will know anything that anyone knew in his group, say they are Y1 & Y2 from group 1 and Z1 & Z2 from group 2.

Now, Y1 will call up Z1 and Y2 will call up Z2. Hence, in next two calls total of 4 agents will know everything.

Now (N - 4) telephone calls are reqiured for remaining (N - 4) secret agents.

Total telephone calls require are
= (N - 2) + 2 + (N - 4)
= 2N - 4

Let\'s take an example. Say there are 4 secret agents W, X, Y & Z. Divide them into two groups of 2 each i.e. (W, X) and (Y, Z). Here, 4 telephone calls are required.
W will call up X.
Y will call up Z.
W, who knows WX will call up Y, who knows YZ.
X, who knows WX will call up Z, who knows YZ.
Take an another example. Say there are 5 secret agents J, K, L, M & N. Divide them into two groups i.e. (J, K) and (L, M, N). Here, 6 telephone calls are required.
J will call up K.
L will call up M.
M will call up N. Now M and N know LMN.
J, who knows JK will call up M, who knows LMN.
K, who knows JK will call up N, who knows LMN.
L will call up to anyone of four.

Mrs. F has invited several wives of delegates to the United Nations for an informal luncheon. She plans to seat her 9 guests ina row such that each lady will be able to converse with the person directly to her left and right. She has prepared the following list.
Mrs. F speaks English only.
Mrs. G speaks English and French.
Mrs. H speaks English and Russian.
Mrs. J speaks Russian only.
Mrs. K speaks English only.

Mrs. L speaks French only.
Mrs. M speaks French and German.
Mrs. N speaks English and German.
Mrs. O speaks English only.
How many distinct seating arrangements are possible? Give all possible seating arrangements.
Note that ABCD and DCBA are the same.

Answer
126 distinct seating arrangements are possible.
Mrs. J and Mrs. H must be together and Mrs. J must be at the end as Mrs. J speaks only Russian and Mrs. H is the only other Russian speaker.

Mrs. L speaks only French and there are two others - Mrs. G and Mrs. M - who speak French. Here there are 2 cases.
CASE A : Mrs. L is at the other end
If Mrs. L is at the other end, either Mrs. G or Mrs. M must seat next to her.
CASE AA : Mrs. G seats next to Mrs. L
Then, Mrs. M must seat next to Mrs. G and Mrs. N must seat next to Mrs. M. This is because Mrs. M speaks French and German, and Mrs. N is the only other German speaker. Thus, the possible seating arrangement is JHxxxNMGL, where x is the English speakers. Mrs. F, Mrs. K and Mrs. O can be arranged in remaining 3 positions in 3! different ways i.e. 6 ways.
CASE AB : Mrs. M seats next to Mrs. L
If so, then either Mrs. N or Mrs. G must seat next to Mrs. M
CASE ABA : Mrs. N seats next to Mrs. M
Thus, the possible seating arrangement is JHxxxxNML, where x is the English speakers. Mrs. F, Mrs. G, Mrs. K and Mrs. O can be arranged in remaining 4 positions in 4! different ways i.e. 24 ways.
CASE ABB : Mrs. G seats next to Mrs. M
Thus, the possible seating arrangement is JHxxxxGML, where x is the English speakers. Mrs. F, Mrs. K, Mrs. N and Mrs. O can be arranged in remaining 4 positions in 4! different ways i.e. 24 ways.

CASE B : Mrs. L does not seat at the end
It means that Mrs. G, Mrs. L and Mrs. M must seat together. Also, Mrs. L must seat between Mrs. G and Mrs. M.

CASE BA : Mrs. G seats left and Mrs. M seats right to Mrs. L i.e. GLM

CASE BAA : GLM is at the other end
Thus, the possible seating arrangement is JHxxxxGLM, where x is the English speakers. Mrs. F, Mrs. K, Mrs. N and Mrs. O can be arranged in remaining 4 positions in 4! different ways i.e. 24 ways.
CASE BAB : GLM is not at the other end
Then Mrs. N must seat next to Mrs. M. Now, we have a group of four GLMN where Mrs. G and Mrs. N speak English. Thus, the possible seating arrangement is JHxxxX, where x is the individual English speakers and X is the group of four females with English speakers at the both ends. Thus, there are 4! different ways i.e. 24 ways.

CASE BB : Mrs. M seats left and Mrs. G seats right to Mrs. L i.e. MLG
Then, Mrs. N must seat next to Mrs. M. Now, we have a group of four NMLG where Mrs. G and Mrs. N speak English. Thus, the possible seating arrangement is JHxxxX, where x is the individual English speakers and X is the group of four females with English speakers at the both ends. Thus, there are 4! different ways i.e. 24 ways.
Thus, total different possible seating arrangements are :
= 6 (case AA) + 24 (case ABA) + 24 (case ABB) + 24 (case BAA) + 24 (case BAB) + 24 (case BB)
= 126 seating arrangements

Thus, 126 distinct seating arrangements are possible.
What is the smallest number which when divided by 10 leaves a remainder of 9, when divided by 9 leaves a remainder of 8, when divided by 8 leaves a remainder of 7, when divided by 7 leaves a remainder of 6 and so on until when divided by 2 leaves a remainder of 1?

Answer
The smallest such number is 2519.

The easiest way is to find the Least Common Multiple (LCM) of 2, 3, 4, 5, 6, 7, 8 and 9. And subtract 1 from it.
The LCM of 2, 3, 4, 5, 6, 7, 8 and 9 is given by 2520. Hence, the required number is 2519

Three friends divided some bullets equally. After all of them shot 4 bullets the total number of bullets remaining is equal to the bullets each had after division. Find the original number divided.

Answer
18

Assume that initial there were 3*X bullets.
So they got X bullets each after division.
All of them shot 4 bullets. So now they have (X - 4) bullets each.

But it is given that,after they shot 4 bullets each, total number of bullets remaining is equal to the bullets each had after division i.e. X

Therefore, the equation is
3 * (X - 4) = X
3 * X - 12 = X
2 * X = 12
X = 6

Therefore the total bullets before division is = 3 * X = 18

Everyday in his business a merchant had to weigh amounts from 1 kg to 121 kgs, to the nearest kg. What are the minimum number of different weights required and how heavy should they be?

The minimum number is 5 and they should weigh 1, 3, 9, 27 and 81 kgs

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
-------
  T E N
```

Answer
Use trial and error. 0 =1, N = 8 ,E = 2, T = 7

```
  1 8 2
  1 8 2
  1 8 2
+ 1 8 2
------
  7 2 8
```

A man is on a search for Atlantis and comes upon an island where all the inhabitants know whether Atlantis is still around or not. However, all of the inhabitants are either Fairies or Trolls and they all use a spell to appear humanoid so you cannot tell which is which. And the Faries always tell the truth and the Trolls always lie, but there is a slight complication, some of the Fairies have gone insane and always lie and some of the Trolls have also gone insane and always tell the truth. So here is your task: you must ask the first inhabitant that you come to ONE question and from that ONE question you must determine wether Atlantis is still around or not. What is the question that you must ask?

Answer
There are 2 answers to it:

Answer I"Is the statement that you are reliable equivalent to the statement that Atlantis is still around?"

Answer II"Do you believe that the Statement that you are a Fairy is equivalent to the statement that Atlantis is still around?"

A frog starts climbing 15 feet wall. Each hour he climbs 3 feet and rests for 30 minutes. During rest, he slips back 2 feet. How many hours does the frog take to reach the top?

Answer
19 hours

A frog climbs 1 foot per 1 1/2 hours as during 30 minutes rest he slips back 2 feet. This way he will climb 12 feet in 18 hours. In next hour he will climb 3 more feet i.e. he will complete 15 feet in 19 hours and will reach the top of the wall.

If a bear eats 65 pounds in fish every day EXCEPT every 6th day which it only eats 45 pounds of fish. If the bear continues this, how many pounds of fish will it eat in 200 days?

Answer
The bear will eat 12,340 pounds of fish in 200 days.

It is given that on every 6th day beareats 45 pounds of fish i.e. on day number 6, 12, 18, 24, ... 192, 198 the bear eats 45 pounds of fish.

Total number of 6th days = 200/6 = 33 (the bear eats 45 pounds)
Hence, the normal days are = 200 - 33 = 167 (the bear eats 65 pounds)

Thus, in 200 days, the bear will eat
= (167) * (65) + (33) * (45)
= 10855 + 1485
= 12,340 pounds

You have 3 points labelled A, B and C. You then have another 3 points labelled 1, 2 and 3. The aim of the puzzle is to connect point A with point 1, 2 and 3. Point B with point 1, 2 and 3 and point C with point 1, 2 and 3.
Now while connecting the points you have to follow one rule - the lines cannot cross over each other.

A	B	C
1	2	3

PS : You can arrange the points in order as long as the lines DO NOT cross over each other.

Answer
There is no solution to it, if you consider 2 dimensions. It is impossible to join each of points A, B and C with points 1, 2 and 3 without lines crossing each other.

There is solution, if you consider 3 dimensions. Consider a circular base and a line perpendicular to it passing from the center. Now take any 3 points along the perimeter of the circular base as points 1, 2 and 3. Similarly take any 3 points along the perpendicular line as points A, B and C. Now it is quite simple to join each of points A, B and C with points 1, 2 and 3 without any of the lines crossing each other.

The other possible 3D structure is Pyramid. Take points 1, 2 and 3 as a vertices of the triangular base and points A, B and C along the height of the Pyramid which is perpendicular to the triangular base and passing through the apex.

Suppose five bales of hay are weighed two at a time in all possible ways. The weights in pounds are 110, 112, 113, 114, 115, 116, 117, 118, 120, and 121.
How much does each bale weigh?

Answer
They weigh 54, 56, 58, 59, 62 pounds.

Let's assume that the weight of five bales are B1, B2, B3, B4 and B5 pounds respectively. Also, B1 <= B2 <= B3 <= B4 <= B5

It is given that five bales of hay are weighed two at a time in all possible ways. It means that each of the bale is weighted four times.
Thus,
4*(B1 + B2 + B3 + B4 + B5) = (110 + 112 + 113 + 114 + 115 + 116 + 117 + 118 + 120 + 121)
4*(B1 + B2 + B3 + B4 + B5) = 1156
(B1 + B2 + B3 + B4 + B5) = 289 pounds

Now, B1 and B2 must add to 110 as they are the lightest one.
B1 + B2 = 110

Similarly, B4 and B5 must add to 121 as they are the heaviest one.
B4 + B5 = 121

From above three equation, we get B3 = 58 pounds

Also, it is obvious that B1 and B3 will add to 112 - the next possible higher value. Similarly, B3 and B5 will add to 120 - the next possible lower value.
B1 + B3 = 112
B3 + B5 = 120

Substituting B3 = 58, we get B1 = 54 and B5 = 62
From 2 & 3 equations, we get B2 = 56 and B4 = 59
Hence, the weight of five bales are 54, 56, 58, 59 and 62 pounds.

Pinto says, "The horse is not Black."
Sandy says, "The horse is either Brown or Grey."
Andy says, "The horse is Brown."
At least one is telling truth and at least one is lying.
Can you tell the color of the horse?

Answer
The color of the horse can be any color other than Black and Brown.
If the color of the horse is Black - all are lying.
If the color of the horse is Brown - all are telling truth.
Thus, the horse is neither Black nor Brown.

If the color of the horse is Grey - Pinto and Sandy are telling truth whereas Andy is lying.
If the color of the horse is other than Black, Brown and Grey - Pinto is telling truth whereas Sandy and Andy are lying.
You must have noticed that for the given conditions, Pinto is always telling truth whereas Andy is always lying

Three convicts are brought into the warden's office. He says he can parole one of them and to decide which one he will parole he takes out 5 hats (3 red and 2 white). He stands behind them and places a hat on each one of their heads and puts the other two remaining hats in a drawer.

He tells the prisioners they can look at the others hats and if they can tell which hat they have on they will be the one who is paroled.
The first man looks at the other two and says, "I don't know."
The second man looks at the others hats and says, "I don't know."
The third man who is blind says, "Even though I have not the gift of sight I can tell by what the others have said that the color of my hat is..."
What color is the blind mans hat and how does he know?

Answer
The color of blind man's hat is Red.

It is sure that the first man saw either both Red hats or one White hat and one Red hat. There are 6 such possibilities:

1) R R R
2) R R W
3) R W R
4) W R R
5) W R W
6) W W R

In all above possibilities, the first man won't be sure of the color of his hat.

Now, the second man knows that the first man saw either both Red hats or one White hat and one Red hat. And, he also knows that its one of the above 6 possibilities. (like we know ;)) But he says, "I don't know". That means that (2) and (5) are not the possibilities as in either case he would be sure of the color of his hat (Red) by just looking at the third man's color of hat (White).
Now, the blind man knows that there are just 4 possibilities - (1), (3), (4), (6) - and in all, the color of his hat is Red.

Three Gold (G) coins, three Silver (S) coins and three Copper (C) coins are arranged in a single row as follow:

G S C G S C G S C

Only 2 adjacent unlike coins can be moved at any one time.
The moved coins must be in contact with at least one other coin in line. i.e. no pair of coins is to be moved and placed away from the remaining ones.
No coin pairs can be reversed i.e. a S-C combination must remain in that order in its new positionwhen it is moved.
What is the minimum number of moves required to get all the coins in following order?

C C C S S S G G G

Show all moves.

Answer
Minimum number of moves are 8.

Move	Order of Coins												
0			G	S	C	G	S	C	G	S	C		
1	G	S	G	S	C	G	S	C			C		
2	G			S	C	G	S	C			C	S	G

3	G	S	C			G	S	C			C	S	G
4	G	S	C	C	S	G	S	C					G
5	G	S	C	C			S	C	S	G			G
6	G	S	C	C	C	S	S			G			G
7			C	C	C	S	S			G	G	S	G
8			C	C	C	S	S	S	G	G	G		

A fly is flying between two trains, each travelling towards each other on the same track at 60 km/h. The fly reaches one engine, reverses itself immediately, and flies back to the other engine, repeating the process each time.
The fly is flying at 90 km/h. If the fly flies 180 km before the trains meet, how far apart were the trains initially?

Answer
Initially, the trains were 240 km apart.

The fly is flying at the speed of 90 km/h and covers 180 km. Hence, the fly flies for 2 hours after trains started.

It's obvious that trains met 2 hours after they started travelling towards each other. Also, trains were travelling at the speed of 60 km/h. So, each train traveled 120 km before they met. Hence, the trains were 240 km apart initially.

What is the minimum number of numbers needed to form every number from 1 to 7,000? Example: To form 4884, you would need 2 4s & 2 8s. 4822 requires a 4, a 8, & 2 2s, but you would not count the numbers again that you had already counted from making 4884.

Answer
36

You will need 3 of numbers 0, 7, 8 & 9, & 4 of numbers 1-6.

A drinks machine offers three selections - Tea, Coffee or Random (Either tea or Coffee) but the machine has been wired up wrongly so that each button does not give what it claims. If each drink costs 50p, how much minimum money do you have to put into the machine to work out which button gives which selection?

Answer
You have to put just 50p.

Put 50p and push the button for Random. There are only 2 possibilities. It will give either Tea or Coffee.
If it gives Tea, then the button named Random is for Tea. The button named Coffee is for Random selection. And the button named Tea is for Coffee.
If it gives Coffee, then the button named Random is for Coffee. The button named Tea is for Random selection. And the button named Coffee is for Tea.
Thus, you can make out which button is for what by putting just 50p and pressing Random selection first.

You have 13 balls which all look identical. All the balls are the same weight except for one. Using only a balance scale, can find the odd one out with only 3 weighings?
Is it possible to always tell if the odd one out is heavier or lighter than the other balls?

Answer
It is always possible to find odd ball in 3 weighings and in most of the cases it is possible to tell whether the odd ball is heavier or lighter. Only in one case, it is not possible to tell the odd ball is whether heavier or lighter.
Take 8 balls and weigh 4 against 4.
If both are not equal, goto step 2
If both are equal, goto step 3

One of these 8 balls is the odd one. Name the balls on heavier side of the scale as H1, H2, H3 and H4. Similarly, name the balls on the lighter side of the scale as L1, L2, L3 and L4. Either one of H's is heavier or one of L's is lighter. Weigh (H1, H2, L1) against (H3, H4, X) where X is one ball from the remaining 5 balls in intial weighing.
If both are equal, one of L2, L3, L4 is lighter. Weigh L2 against L3.
If both are equal, L4 is the odd ball and is lighter.
If L2 is light, L2 is the odd ball and is lighter.
If L3 is light, L3 is the odd ball and is lighter.

If (H1, H2, L1) is heavier side on the scale, either H1 or H2 is heavier. Weight H1 against H2
If both are equal, there is some error.
If H1 is heavy, H1 is the odd ball and is heavier.
If H2 is heavy, H2 is the odd ball and is heavier.

If (H3, H4, X) is heavier side on the scale, either H3 or H4 is heavier or L1 is lighter. Weight H3 against H4
If both are equal, L1 is the odd ball and is lighter.
If H3 is heavy, H3 is the odd ball and is heavier.
If H4 is heavy, H4 is the odd ball and is heavier.

One of the remaining 5 balls is the odd one. Name the balls as C1, C2, C3, C4, C5.
Weight (C1, C2, C3) against (X1, X2, X3) where X1, X2, X3 are any three balls from the first weighing of 8 balls.
If both are equal, one of remaining 2 balls is the odd i.e. either C4 or C5. Weigh C4 with X1
If both are equal, C5 is the odd ball. But you can not tell whether it is heavier or lighter.
If C4 is heavy, C4 is the odd ball and is heavier.
If C4 is light, C4 is the odd ball and is lighter.

If (C1, C2, C3) is heavier side, one of C1, C2, C3 is the odd ball and is heavier. Weigh C1 and C2.
If both are equal, C3 is the odd ball and is heavier.
If C1 is heavy, C1 is the odd ball and is heavier.
If C2 is heavy, C2 is the odd ball and is heavier.

If (C1, C2, C3) is lighter side, one of C1, C2, C3 is the odd ball and is lighter. Weigh C1 and C2.
If both are equal, C3 is the odd ball and is heavier.
If C1 is light, C1 is the odd ball and is lighter.
If C2 is light, C2 is the odd ball and is lighter.
How many squares are there in a 5 inch by 5 inch square grid? Note that the grid is made up of one inch by one inch squares.

Answer
There are 55 squares in a 5 by 5 grid.

There are 25 squares of one grid.
There are 16 squares of four grids i.e. 2 by 2
There are 9 squares of nine grids i.e. 3 by 3
There are 4 squares of sixteen grids i.e. 4 by 4
There is 1 square of twenty-five girds i.e. 5 by 5

Hence, there are total 25 + 16 + 9 + 4 + 1 = 55 squares.

You must have noticed one thing that total number squares possible of each size is always a perfact square i.e. 25, 16, 9, 4, 1

For a grid of N by N, the possible number of squares are
$= N^2 + (N - 1)^2 + (N - 2)^2 + (N - 3)^2 + ... + 3^2 + 2^2 + 1^2$

For 1 by 1 grid, total squares = $1^2 = 1$
For 2 by 2 grid, total squares = $2^2 + 1^2 = 5$
For 3 by 3 grid, total squares = $3^2 + 2^2 + 1^2 = 14$
For 4 by 4 grid, total squares = $4^2 + 3^2 + 2^2 + 1^2 = 30$
For 5 by 5 grid, total squares = $5^2 + 4^2 + 3^2 + 2^2 + 1^2 = 55$

Five horses ran in the race. There were no ties. Sikandar did not come first.
Star was neither first nor last. Mughal Glory came in one place after Sikandar.
Zozo was not second. Rangila was two place below Zozo.In what order did the horses finish?

Answer
It's simple.

Let's find the possible places horses can finish. Possibilities are:
Sikandar - 2,3,4 (not 5th as Mughal Glory came one place after him)
Star - 2,3,4
Mughal Glory - 3,4,5
Zozo - 1,3 (not 4th & 5th as Rangila is two place after him)
Rangila - 3,5

So the result is:
1 Zozo
2 Star

3 Rangila
4 Sikandar
5 Mughal Glory

If you added together the number of 2's in each of the following sets of numbers, which set would contain the most 2's: 1-333, 334-666, or 667-999?
Answer
1-333
The reason why is because 200-299 each begins with a 2!

If one person sends the e-mail to two friends, asking each of them to copy the mail and send it to two of their friends, those in turn send it to two of their friends and so on. How many e-mails would have been sent by the time it did 30 sets?

Answer
2147483646

First person sent the mail to 2 persons. Those 2 sent the mail to 2 persons each, total 4 persons. Now, those 4 person sent mail to total 8 persons, then 8 to 16 persons, 16 to 32 persons and so on.... Hence, it a series of 2, 4, 8, 16, 32 upto 30 numbers

It is a Geometric series with common ratio 2 and first number is also 2. Summation of such series is given by $A * (R^n - 1) / (R - 1)$ where
A = First term
R = Common Ratio
n = total numbers

So total number of times mail sent by the time it did 30 sets
$= 2 * (2^{30} - 1) / (2 - 1)$
$= 2 * (1073741824 - 1)$
$= 2 * 1073741823$
$= 2147483646$

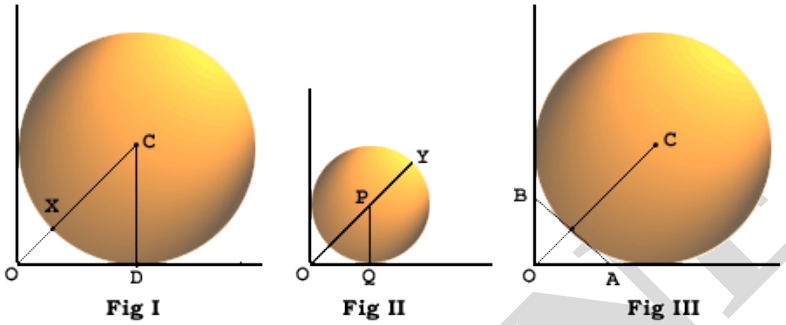
At the entrance to a members club stands a stranger seeking admission. A friend told him that it's easy to get in. You just have to answer a question corrcetly! Answering wrong, however, will result in being shot!
To live a little longer, the man waits in a back alley near the entrance for people to go in. After a while a man comes to the entrance. The door warden asks him: "Twelve?" to which he replies "Six!" and goes in.
"That's easy." our friend thinks, but he waits a little longer.
Another man comes to the door. "Six?" the door warden asks, to which he replies "Three!" and goes in.
"That's too good to be true" our friend thinks, and he was right. Because, when asked "Four?", he answered "Two!" and was found dead in the alley.
What was the correct answer?

Answer
The correct answer was "Four".

The answer is the number of letters in the word spoken by the door warden.

"Twelve" contains "Six" letters i.e. T, W, E, L, V, E
"Six" contains "Three" letters i.e. S, I, X
Similarly, "Four" contains "Four" letters i.e. F, O, U, R

There is a perfect sphere of diameter 40 cms. resting up against a perfectly straight wall and a perfectly straight floor i.e. the wall and the floor make a perfect right angle.
Can a perfect sphere of diameter 7 cms. pass through the space between the big sphere, the wall and the floor? Support your answer with valid arguments. Don't submit just "Yes" or "No".



For the sake of simplicity, consider two-dimension i.e view sphere as a two dimensional circle with diameter 40 cms.

From Figure I, (40 cms diameter sphere)
$OC^2 = OD^2 + CD^2$
$OC^2 = 20^2 + 20^2$
OC = 28.28427 cms

Also, X is the closest point to origin O on the sphere.
CX = 20 cms (radius)
OX = OC - CX
OX = 28.28427 - 20
OX = 8.28427 cms

From Figure II, (7 cms diameter sphere)
$OP^2 = OQ^2 + PQ^2$
$OP^2 = (3.5)^2 + (3.5)^2$
OP = 4.94974 cms

Also, Y is the farthest point to origin O on the sphere.
PY = 3.5 cms (radius)
OY = OP + PY
OY = 4.94974 + 3.5
OY = 8.44974 cms

Now, as OY > OX i.e. smaller sphere requires more space than the space available. Hence, smaller sphere of 7 cms diameter can not pass through the space between the big sphere, the wall and

the floor.

The puzzle can be solved by another method.
Draw a line tangent to the big sphere at the point X such that X is the closest point to the origin O on sphere. The tanget will cut X and Y axes at A and B respectively such that OA=OB. [See Fig III] From above, OX=8.28427 cms.

From the right angle triangle OAB, we can deduct that
OA = OB = 11.71572 cms
AB = 16.56854 cms

Now, the diameter of the inscribed circle of right angle triangle is given by d = a + b - c where a <= b < c

The maximum possible diameter of the circle which can pass through the space between the big sphere, the wall and the floor is
= OA + OB - AB
= 11.71572 + 11.71572 - 16.56854
= 6.86291 cms

Hence, the sphere with 7 cms diameter can not pass through the space between the big sphere, the wall and the floor.

Sarika multiplied 414 by certain number and obtained 69958 as the answer. But she found that there is some error in the answer - both the 9s in the answer are wrong and all the other digits are correct. Can you find the correct answer?

Answer
The correct answer is 60858.

If you divide 69958 by 414, you will get 168.98. Hence, assume some three digit number and multiply it by 414 and use 6**58 as the answer.

Assume three digit number such that

```
      * * *
      4 1 4
   -----------
      * * *
     * * * 0
    * * * 0 0
   -----------
    6 * * 5 8
```

It is obvious that the last digit of the assumed number must be 7.

```
      * * 7
      4 1 4
   -----------
      * * 8
     * * 7 0
```

```
  * * 8 0 0
------------
  6 * * 5 8
```

Now, the second last digit of the assumed number must be 4 or 9. Also, the first digit of the assumed number must be 1 as the first digit of the answer is 6. Using trial and error for above two conditions, the answer is

```
    1 4 7
    4 1 4
------------
    5 8 8
  1 4 7 0
5 8 8 0 0
------------
6 0 8 5 8
```

Find the least number which when divided by 35, leaves remainder 25; when divided by 45, leaves remainder 35 and when divided by 55, leaves remainder 45.

Answer
3455
The answer is LCM of (35, 45, 55) minus 10.
LCM of (35, 45, 55) is 3465.
Hence, the answer is 3455.

The ratio of Boys to Girls is 6:4. 60% of the boys and 40% of the girls take lunch in the canteen. What % of class takes lunch in canteen?

Answer
Assume there are 6X boys and 4X Girls
Total Students taking lunch in canteen
= (6X)(60/100) + (4X)(40/100)
= 36(X/10) + 16(X/10)
= 52(X/10)

Total students are = 6X + 4X = 10X
% of class taking lunch in canteen
= ((52X/10) * 100) / 10X
= 52 %

In the following multiplication, certain digits have been replaced with asterisks (*). Replace all the asterisks such that the problem holds the result.

```
    * * 7
  X 3 * *
  ---------
  * 0 * 3
  * 1 *
* 5 *
```

```
   -------------
   *  7  *  *  3
```

Answer
A simple one.

```
       1 1 7
     X 3 1 9
     ----------
     1 0 5 3
     1 1 7
   3 5 1
   -------------
   3 7 3 2 3
```

How long would it take you to count 1 billion orally if you could count 200 every minute and were given a day off every four years?
Assume that you start counting on 1 January 2001.

Answer
9 Years, 187 Days, 5 Hours, 20 minutes

As you can count 200 per minute, to count 1 billion you require
= 1,000,000,000/200 minutes
= 5,000,000 minutes
= 83,333.3333 hours
= 3,472.2222 days
= 9.512937 years
= 9 Years, 187 Days, 5 Hours, 20 minutes

Note that a day off every four year will be a Leap day. Hence, no need to consider leap year.
*d*Five students - Akash, Chintan, Jignesh, Mukund and Venky - appeared for an exam. There were total five questions - two multiple choice (a, b or c) and three true/false questions. They answered five questions each and answered as follow.

	I	II	III	IV	V
Chintan	c	b	True	True	False
Akash	c	c	True	True	True
Jignesh	a	c	False	True	True
Mukund	b	a	True	True	False
Venky	b	b	True	False	True

Also, no two students got the same number of correct answers.
Can you tell which are the correct answers? What are their individual score?

Answer
The correct answers are b, a, True, False and False. Also, the scores are Jignesh (0), Akash (1), Chintan (2), Venky (3) and Mukund (4).

As no two students got the same number of correct answers, the total number of correct answers must be either 15 (1+2+3+4+5) or 10 (0+1+2+3+4).

Let's find out the maximum number of correct answers possible from the answers given by them.
For Question I = 2 (b or c)
For Question II = 2 (b or c)
For Question III = 4 (True)
For Question IV = 4 (True)
For Question V = 3 (True)

Thus, the maximum number of correct answers possible are 15 (2+2+4+4+3) which means that Akash would have given all correct answers as only he answered True for questions III, IV and V. But then Chintan and Jignesh would have exactly 3 correct answers. And also, Mukund and Venky would have 2 correct answers. So no one got all five correct. One can also arrive at this conclusion by trial-and-error, but that would be bit lengthy.

Now, it is clear that total number of correct answers are 10 (0+1+2+3+4). Questions III and IV both can not be False. If so, total number of correct answers would not be 10. So the student who got all wrong can not be Chintan, Akash and Mukund.

If Venky got all wrong, then Chintan, Jignesh and Mukund each would have atleast 2 correct answers. It means that Akash would have to be the student with only one correct answer and the correct answers for questions I and II would be a and a respectively. But then the total number of correct answers would be 1 (a) + 1 (a) + 1 (False) + 4 (True) + 2 (Flase) = 9.

Thus, Jignesh is the student with all wrong answers. The correct answers are b, a, True, False and False. Also, the scores are Jignesh (0), Akash (1), Chintan (2), Venky (3) and Mukund (4).

Eleven boys and girls wait to take their seats in the same row in a movie theater. There are exactly 11 seats in the row. They decided that after the first person sits down, the next person has to sit next to the first. The third sits next to one of the first two and so on until all eleven are seated. In other words, no person can take a seat that separates him/her from at least one other person. How many different ways can this be accomplished? Note that the first person can choose any of the 11 seats.

Answer
There are 1024 different ways.

This is the type of Brain Teaser that can be solved using the method of induction.
If there is just a one person and one seat, that person has only one option.
If there are two persons and two seats, it can be accomplished in 2 different ways.
If there are three persons and three seats, it can be accomplished in 4 different ways.
Remember that no person can take a seat that separates him/her from at least one other person.
Similarly, four persons and four seats produce 8 different ways. And five persons with five seats produce 16 different ways.

It can be seen that with each additional person and seat, the different ways increase by the power of two. For six persons with six seats, there are 32 different ways.
For any number N, the different possible ways are $2^{(N-1)}$
Thus, for 11 persons and 11 seats, total different ways are 2^{10} i.e. 1024
The secret agent X emailed a code word to his head office. They are "AIM DUE OAT TIE MOD". But four of these five words are fake and only one contains the information.
The agent X also mailed a sentence as a clue - if I tell you any one character of the code word, you would be able to tell the number of vowels in the code word.
Can you tell which is the code word?

Answer
The code word is TIE.

If you were told any one character of MOD, then you would not be able to determine whether the number of vowels are one or two. e.g. if you were told M, there are two words with M - AIM with 2 vowels and MOD with 1 vowel. So you would not be able to say the number of vowels. Same arguments can be given for characters O and D.

Hence, the word with any one of M, O or D is not a code word i.e. AIM, DUE, OAT and MOD are not the code word. Thus, TIE is the code word.
T : two words - TIE and OAT, both with 2 vowels
I : two words - TIE and AIM, both with 2 vowels
E : two words - TIE and DUE, both with 2 vowels.

Four men - Abraham, Bobby, Clinton and Denial - are standing in a straight line.
One man is fair, handsome and unscarred.
Two men who are not fair, are each standing next to Abraham.
Bobby is the only man standing next to exactly one handsome man.
Clinton is the only man not standing next to exactly one scarred man.
Who is fair, handsome and unscarred?

Answer
Clinton is fair, handsome and unscarred.

From (2), both the men standing next to Abraham are not fair. Also, exactly one man is fair, handsom and unscarred. Hence, there are two cases:

Case 1 :: ? (N, ?, ?) : Abraham (Y, Y, N) : ? (N, ?, ?) : ? (?, ?, ?)
Case 2 :: ? (N, ?, ?) : Abraham (?, ?, ?) : ? (N, ?, ?) : ? (Y, Y, N)

Note the representation - Name (Fair, Handsome, Scarred). "Y" stands for Yes and "N" stabds for No. Abraham (Y, Y, N) means Abraham is Fair, Handsome and Unscarred.

It is clear that either Abraham or the man at the extreme right is fair, handsome and unscarred.

From (4), it is deduced that Clinton is standing next to unscarred man and each of the other men standing next to exactly one scarred man.

Case 1 :: Clinton (N, ?, N) : Abraham (Y, Y, N) : ? (N, ?, Y) : ? (?, ?, Y)
Case 2 :: ? (N, ?, Y) : Abraham (?, ?, Y) : ? (N, ?, N) : Clinton (Y, Y, N)

From (3), Bobby is the only man standing next to exactly one handsome man. But in Case 1, Clinton is standing next to exactly one handsome man. Hence, Case 1 is not possible and Case 2 is the correct one.

Case 2 :: ? (N, ?, Y) : Abraham (?, ?, Y) : ? (N, ?, N) : Clinton (Y, Y, N)

Again from (3) and (4), there are 2 possibilities as shown below.
Case 2a :: Denial (N, N, Y) : Abraham (?, N, Y) : Bobby (N, N, N) : Clinton (Y, Y, N)
Case 2b :: Bobby (N, N, Y) : Abraham (?, Y, Y) : Denial (N, N, N) : Clinton (Y, Y, N)
Thus, Clinton is fair, handsome and unscarred. Also, Abraham may be either fair or not fair.
An orange colored glass has Orange juice and white colored glass has Apple juice both of equal volumes. 50ml of the orange juice is taken and poured into the white glass. After that similarly, 50ml from the white glass is poured into the orange glass.
Of the two quantities, the amount of apple juice in the orange glass and the amount of orange juice in the white glass, which one is greater and by how much?

Answer
The two quantities are equal.

Solve it by taking example. Let's assume that both glasses contain 450 ml of juice each.

Now, 50ml of the orange juice is taken and poured into the White glass. Hence, orange colored glass contains 400 ml of Orange juice and white glass contains 450 ml of Apple juice and 50 ml of Orange juice i.e. total of 500 ml from white glass contains 450 ml of Apple juice and 50 ml of Orange juice. It means that every 50 ml from white glass contains 45 ml of Apple juice and 5 ml of Orange juice.

Similary, 50 ml of juice from white glass is poured into orange glass. Now this 50 ml is not a pure apple juice. It contains 45 ml of Apple juice and 5 ml of Orange juice.

Hence, Orange glass contains 405 ml of Orange juice and 45 ml of Apple juice. Similary, white glass contains 405 ml of Apple juice and 45 ml of Orange juice.

	Orange Glass		White Glass	
	Orange Juice	Apple Juice	Orange Juice	Apple Juice
Initially	450 ml	0 ml	0 ml	450 ml
50 ml from Orange Glass is poured into White Glass	400 ml	0 ml	50 ml	450 ml
50 ml from White Glass is poured into Orange Glass	405 ml	45 ml	45 ml	405 ml

Now it is clear that the amount of apple juice in the orange glass and the amount of orange juice in the white glass are the same.
P.S. Here we assumed 450 ml as initial quantity in both the glasses just for simplicity. You can try the same by assuming any other number. But the answer is the same.

Annie, Bunnie, Candy and Dina visited Edy on 14th February.
The time of each visit was as follows:
- Annie at 8:00
- Bunnie at 9:00
- Candy at 10:00
- Dina at 11:00

Each time mentioned above may be either AM or PM.
Candy did not visit Edy between Bunnie and Dina.
At least one female visited Edy between Annie and Bunnie.
Annie did not visit Edy before both Candy and Dina.
Can you tell at what time did they individually visit Edy?

Answer
Bunnie (9:00AM) - Dina (11:00AM) - Annie (8:00PM) - Candy (10:00PM)

From the given data, it is clear that at least one female visited Edy in the morning and at least one female visited Edy in the evening. Also, from (4), Annie did not visit Edy first. It means that Annie visited Edy at 8:00 PM

From (3), Bunnie must have visited Edy at 9:00 AM. Also, either Candy or Dina or both visited Edy in the morning.

But from (2), only Dina must have visited Edy in the morning at 11:00 AM and hence, Candy visited Edy at 10:00 PM.

The order of visits must be:
Bunnie (9:00AM) - Dina (11:00AM) - Annie (8:00PM) - Candy (10:00PM)

In training for a competition, you find that swimming downstream (with the current) in a river, you can swim 2 miles in 40 minutes, & upstream (against the current), you can swim 2 miles in 60 minutes. How long would it take you to swim a mile in still water?

Answer
You are able to swim downstream at 3 miles an hour, & upstream at 2 miles an hour. There is a difference of 1 mile an hour, which is the river helping you in 1 direction, & slowing you in the other direction.

Average the 2 rates, & you have the rate that you can swim in still water, which is 2.5 miles an hour.
You can thus swim a mile in still water in 24 minutes.

Father's age is three years more than three times the son's age. After three years, father's age will be ten years more than twice the son's age. What is the father's present age?

Answer
Let son's present age is X years.
Hence, father's present age is (3X + 3) years.

After 3 years, son's age will be (X + 3) years.
and father's age will be (3X + 6) years.

But given that after 3 years father's age will be ten years more than twice the son's age.
(3X + 6) = 2 * (X + 3) + 10
3X + 6 = 2X + 16
X = 10

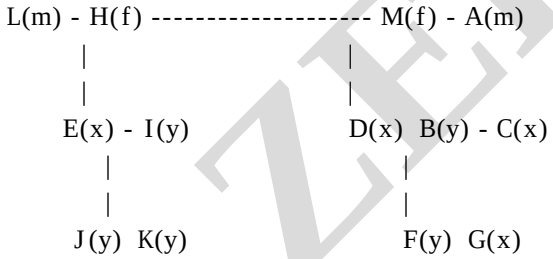
Therefore, father's present age is 33 years.

A is the father of two children - B and D who are of different sexes.
C is B's spouse.
E is the same sex as D.
B and C have the two children - F who is the same sex as B and G who is the same sex as C.
E's mother, H who is married to L, is the sister of D's mother, M.
E and E's spouse, I have two children - J and K who are the same sex as I.
Note that no persons have married more than once. Also, there are more number of females than males. Can you tell how many females are there?

Answer
There are 7 females and 6 males.

Assume that there are four sexes - male, female, X and Y. Prepare the following tree based on the data given :

sister



It is clear that there are altogether 13 persons - 2 males, 2 females, 4 Xs and 5 Ys.

It is given that there are more number of females than male. Hence, all Y must represent female. Thus, there are 7 females and 6 males.

A positive integer that, when added to 1000 gives a sum which is greater than when multiplied by 1000. Find the positive integer.

Answer
The positive integer is 1.

Sum of 1 and 1000 = 1 + 1000 = 1001

Multiplication of 1 and 1000 = 1 * 1000 = 1000

Thus, sum of 1 and 1000 is greater than the multiplication of 1 and 1000.

Mr. D'souza has bought four cars - Merc, Honda, Ford, Zen - as presents for his sons' birthdays, all of which are next week. Given the following information, what will each son get? Alan will not get the Honda unless Barry gets the Merc and Denzil gets the Ford. Barry will not get the Ford unless Carl gets the Zen and Alan gets the Merc. Denzil will not get the Zen unless Alan gets the Honda and Barry gets the Merc. Alan will not get the Merc unless Carl gets the Zen and Denzil gets the Ford. Barry will not get the Merc unless Alan gets the Zen and Denzil gets the Ford. Alan will not get the Zen unless Barry gets the Honda and Carl gets the Merc. Carl will not get the Zen unless Barry gets the Honda and Alan gets the Ford. Alan will not get the Ford unless Barry gets the Zen and Denzil gets the Honda. Carl will not get the Merc unless Denzil gets the Honda.

Answer
Let's put given 9 information in a table. The person in Bold Font will not get the corresponding car unless the persons in Normal Font get the corresponding cars. Also, the person will *Italics* will get the remaining car.

	Merc	Honda	Ford	Zen
1	Barry	Alan	Denzil	*Carl*
2	Alan	*Denzil*	Barry	Carl
3	Barry	Alan	*Carl*	Denzil
4	Alan	*Barry*	Denzil	Carl
5	Barry	*Carl*	Denzil	Alan
6	Carl	Barry	*Denzil*	Alan
7	*Denzil*	Barry	Alan	Carl
8	*Carl*	Denzil	Alan	Barry
9	Carl	Denzil	?	?

Now, let's assume that Alan gets the Merc. Then from (4), Barry gets the Honda, Denzil gets the Ford and Carl gets the Zen. But from (7), Carl will not get the Zen unless Barry gets the Honda and Alan gets the Ford. Thus, it contradicts the original assumption. Hence, Alan will not get the Merc.

Let's assume that Alan gets the Honda. Then from (1), Barry gets the Merc, Denzil gets the Ford and Carl gets the Zen. But from (5) or from (7), it contradicts the original assumption. Hence, Alan will not get the Honda.

Let's assume that Alan gets the Ford. Then from (8), Carl gets the Merc, Denzil gets the Ford and Barry gets the Zen - which does not contradict any of the statement.

Similaly, you can assume that Alan gets the Zen. (which is contradictory to (9))
Hence, Alan gets the Ford, Barry gets the Zen, Carl gets the Merc and Denzil gets the Honda.

Yesterday in a party, I asked Mr. Shah his birthday. With a mischievous glint in his eyes he replied. "The day before yesterday I was 83 years old and next year I will be 86."

Can you figure out what is the Date of Birth of Mr. Shah? Assume that the current year is 2000.

Answer
Mr. Shah's date of birth is 31 December, 1915

Today is 1 January, 2000. The day before yesterday was 30 December, 1999 and Mr. Shah was 83 on that day. Today i.e. 1 January, 2000 - he is 84. On 31 December 2000, he will be 85 and next year i.e. 31 December, 2001 - he will be 86. Hence, the date of birth is 31 December, 1915.

Many people do think of Leap year and date of birth as 29th February as 2000 is the Leap year and there is difference of 3 years in Mr. Shah's age. But that is not the answer.

There are 4 mathematicians - Brahma, Sachin, Prashant and Nakul - having lunch in a hotel. Suddenly, Brahma thinks of 2 integer numbers greater than 1 and says, "The sum of the numbers is..." and he whispers the sum to Sachin. Then he says, "The product of the numbers is..." and he whispers the product to Prashant. After that following conversation takes place :

Sachin : Prashant, I don't think that we know the numbers.
Prashant : Aha!, now I know the numbers.
Sachin : Oh, now I also know the numbers.
Nakul : Now, I also know the numbers.

What are the numbers? Explain your answer.

Answer
The numbers are 4 and 13.

As Sachin is initially confident that they (i.e. he and Prashant) don't know the numbers, we can conclude that -
1) The sum must not be expressible as sum of two primes, otherwise Sachin could not have been sure in advance that Prashant did not know the numbers.
2) The product cannot be less than 12, otherwise there would only be one choice and Prashant would have figured that out also.

Such possible sum are - 11, 17, 23, 27, 29, 35, 37, 41, 47, 51, 53, 57, 59, 65, 67, 71, 77, 79, 83, 87, 89, 93, 95, 97, 101, 107, 113, 117, 119, 121, 123, 125, 127, 131, 135, 137, 143, 145, 147, 149, 155, 157, 161, 163, 167, 171, 173, 177, 179, 185, 187, 189, 191, 197, ...

Let's examine them one by one.

If the sum of two numbers is 11, Sachin will think that the numbers would be (2,9), (3,8), (4,7) or (5,6).

Sachin : "As 11 is not expressible as sum of two primes, Prashant can't know the numbers."

Here, the product would be 18(2*9), 24(3*8), 28(4*7) or 30(5*6). In all the cases except for product 30, Prashant would know the numbers.

- if product of two numbers is 18:
Prashant : "Since the product is 18, the sum could be either 11(2,9) or 9(3,6). But if the sum was 9, Sachin would have deduced that I might know the numbers as (2,7) is the possible prime numbers pair. Hence, the numbers must be 2 and 9." (OR in otherwords, 9 is not in the Possible Sum List)

- if product of two numbers is 24:
Prashant : "Since the product is 24, the sum could be either 14(2,12), 11(3,8) or 10(4,6). But 14 and 10 are not in the Possible Sum List. Hence, the numbers must be 3 and 8."

- if product of two numbers is 28:
Prashant : "Since the product is 28, the sum could be either 16(2,14) or 11(4,7). But 16 is not in the Possible Sum List. Hence, the numbers must be 4 and 7."

- if product of two numbers is 30:
Prashant : "Since the product is 30, the sum could be either 17(2,15), 13(3,10) or 11(5,6). But 13 is not in the Possible Sum List. Hence, the numbers must be either (2,15) or (5,6)." Here, Prashant won't be sure of the numbers.

Hence, Prashant will be sure of the numbers if product is either 18, 24 or 28.

Sachin : "Since Prashant knows the numbers, they must be either (3,8), (4,7) or (5,6)." But he won't be sure. Hence, the sum is not 11.

Summerising data for sum 11:

Possible Sum	PRODUCT	Possible Sum
2+9	18	2+9=11 (possible) 3+6=9
3+8	24	2+12=14 3+8=11 (possible) 4+6=10
4+7	28	2+12=14 3+8=11 (possible) 4+6=10
5+6	30	2+15=17 (possible) 3+10=13 5+6=11 (possible)

Following the same procedure for 17:

Possible Sum	PRODUCT	Possible Sum
2+15	30	2+15=17 (possible) 3+10= 13 5+6=11 (possible)
3+14	42	2+21=23 (possible) 3+14=17 (possible) 6+7=13

4+13	52	2+26=28 4+13=17 (possible)
5+12	60	2+30=32 3+20=23 (possible) 4+15=19 5+12=17 (possible) 6+10=16
6+11	66	2+33=35 (possible) 3+22=25 6+11=17 (possible)
7+10	70	2+35=37 (possible) 5+14=19 7+10=17 (possible)
8+9	72	2+36=38 3+24=27 (possible) 4+18=22 6+12=18 8+9=17 (possible)

Here, Prashant will be sure of the numbers if the product is 52.

Sachin : "Since Prashant knows the numbers, they must be (4,13)."

For all other numbers in the Possible Sum List, Prashant might be sure of the numbers but Sachin won't.

Here is the step by step explaination:

Sachin : "As the sum is 17, two numbers can be either (2,15), (3,14), (4,13), (5,12), (6,11), (7,10) or (8,9). Also, as none of them is a prime numbers pair, Prashant won't be knowing numbers either."

Prashant : "Since Sachin is sure that both of us don't know the numbers, the sum must be one of the Possible Sum List. Further, as the product is 52, two numbers can be either (2,26) or (4,13). But if they were (2,26), Sachin would not have been sure in advance that I don't know the numbers as 28 (2+26) is not in the Possible Sum List. Hence, two numbers are 4 and 13."

Sachin : "As Prashant now knows both the numbers, out of all possible products - 30(2,15), 42(3,14), 52(4,13), 60(5,12), 66(6,11), 70(7,10), 72(8,9) - there is one product for which list of all possible sum contains ONLY ONE sum from the Possible Sum List. And also, no such two lists exist. [see table above for 17] Hence, two numbers are 4 and 13."

Nakul figured out both the numbers just as we did by observing the conversation between Sachin and Prashant.

It is interesting to note that there are no other such two numbers. We checked all the possible sums till 500 !!!

Substitute digits for the letters to make the following subtraction problem true.

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  S A N T A
- C L A U S
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    X M A S
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Note that the leftmost letter can't be zero in any word. Also, there must be a one-to-one mapping between digits and letters. e.g. if you substitute 3 for the letter M, no other letter can be 3 and all other M in the puzzle must be 3.

Answer

One of the simplest brain teaser as there are total 26 possible answers.

It is obvious that S=C+1. Since A-S=S, it is clear that A=2*S or 2*s-10. Also, L and X are interchangeable.

SANTA	-	CLAUS	=	XMAS
24034	-	16492	=	7542
24034	-	17492	=	6542
24074	-	15432	=	8642
24074	-	18432	=	5642
24534	-	16492	=	8042
24534	-	18492	=	6042
24794	-	16452	=	8342
24794	-	18452	=	6342
24804	-	15462	=	9342
24804	-	19462	=	5342
24974	-	16432	=	8542
24974	-	18432	=	6542
36806	-	27643	=	9163
36806	-	29643	=	7163
36156	-	27693	=	8463
36156	-	28693	=	7463
62132	-	54206	=	7926
62132	-	57206	=	4926
62172	-	53246	=	8926
62172	-	58246	=	3926
62402	-	53276	=	9126
62402	-	59276	=	3126
62712	-	53286	=	9426
62712	-	59286	=	3426
62932	-	58206	=	4726
62932	-	54206	=	8726