

PUZZLES FROM BRAINVISTA

Compiled by Raji

Sam and Appu are intelligent mathematicians. Both of them have two prime numbers written on their foreheads and are told that any three of them form the sides of a triangle with prime perimeter. They take turns stating whether they can deduce the numbers on their own foreheads.

Sam sees 13 and 17 on Appu's forehead and each of them has stated "Don't know" on each of their first two turns.

It is now Sam's third turn. What are the numbers on Sam's forehead?

Answer

The numbers on Sam's forehead are 13 and 17.

Corresponding to 13 and 17 on Appu's head, there are just 3 combinations which satisfy prime perimeter triangle condition: (7, 17), (11, 13) and (13, 17)

If Sam had 7 and 17, Appu would have guessed 13 and 17 in his first guess as that is the only possible solution.

If Sam had 11 and 13, Appu had one of the 2 choices to make (5, 13) and (13, 17). But Appu being an intelligent mathematician would never have chosen (5, 13) because if that was the case, his counterpart would have guessed (11, 13) in his first guess. But since Sam passed on his first attempt, Appu knows it cannot be (5, 13). Incidentally Appu is not able to guess it in the second turn also so even (11, 13) as an option is ruled out.

The last option is (13, 17) which like before has 3 possibilities. Since both pass first two times only that option remains and Sam guesses it right in his third attempt.

Hence, the numbers on Sam's forehead are (13, 17).

Santa and Banta are in charge of counting the people who get on and off the elevator in a hotel. They take turns riding to the top floor and back down, counting as they go. After two such trips each morning, two around noon and two in the evening, there is an average taken.

The hotel manager wants to know today's average.

1. On Banta's noon trip there were 32 fewer people than in his morning count.
2. Santa counted a total of 122 in the morning and noon counts, just one higher than his evening count, but 24 more than Banta's evening count.
3. Santa's morning count is the same as Banta's average.
4. Santa's evening count was 37 more than Banta's morning count.

Answer

From (2), Santa's evening count was 121 and Newell's evening count was 98.

From (4), Santa's evening count was 37 more than Newell's morning count. Hence, Newell's morning count was 84.

From (1), Banta's noon count was 32 less than his morning count. Hence, Banta's noon count was 52.

Thus, Banta's total count = $(84 + 52 + 98) = 234$
Average = $234 / 3 = 78$

From (3), Santa's morning count was same as Banta's average. Hence, Santa's morning count was 78.

From (2), Santa's total count for morning and noon was 122. Hence, Santa's noon count was 44 ($122 - 78$).

Thus, Santa's total count = $(78 + 44 + 121) = 243$
Average = $243 / 3 = 81$

	Morning	Noon	Evening	Total	Average
Santa	78	44	121	243	81
Banta	84	52	98	234	78

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

Y E A H

T H A T S

+ O U R

S T O R Y

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 5 for the letter T, no other letter can be 5 and all other T in the puzzle must be 5.

Answer

A=1, T=2, S=3, U=4, H=5, Y=6, O=7, R=8, E=9

Following can be deduced from the given cryptogram:

- 1) $S = T + 1$
- 2) $E + A = 9$ or 10
- 3) $Y + H \geq 10$
- 4) $1 \leq T \leq 4$... From (1) & (3)
- 5) $2 \leq S \leq 5$... From (1) & (4)

Y E A H	6 9 1 5
T H A T S	2 5 1 2 3
+ O U R	+ 7 4 8
-----	-----
S T O R Y	3 2 7 8 6

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 repetition 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 probability 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

= (Total lucky ways) / (Total Sample space)
= $(22935) / (1.04776 * 10^{13})$
= $2.1889 * 10^{-9}$
i.e. 2 in a billion.

You are given 12 balls and one of them has a weight defect - either heavier or lighter. We don't know which one it is. You are allowed to use the balance pan three times.

Find out which one of the twelve is the defective ball?

Submitted by : Nitin Mittal

Answer

It is always possible to find odd ball in 3 weighings and to tell whether the odd ball is heavier or lighter.

1. Take 8 balls and weigh 4 against 4.
 - If both are not equal, goto step 2
 - If both are equal, goto step 3

- If C4 is light, C4 is the odd ball and is lighter.
- If (C1, C2) is heavier side, one of C1, C2 is heavier or C3 is lighter.
Weigh C1 and C2.
 - If both are equal, C3 is the odd ball and is lighter.
 - 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) is lighter side, one of C1, C2 is lighter or C3 is heavier.
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.

Amit, Bhavin, Himanshu and Rakesh are sitting around a table.

- The Electronics 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 Electronics Engineer.

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

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

In the first One-day International Cricket match between India and England at Lords, the bowling honours in the Indian team was shared by Kapil Dev, Madanlal and Binni.

1. Either Kapil took half the wickets or one of the players was run out.
2. Either Kapil took 5 wickets and Binni took 3 or Madanlal took one more than Binni.
3. The sum of Kapil's victims and twice of Madanlal's victims is one more than three times Binni's victims.

Can you tell the number of wickets each of them took?

Answer

Statement (3) can be represented as $K + 2M = 3B + 1$
where,

K - wickets taken by Kapil Dev

M - wickets taken by Madanlal

B - wickets taken by Binni

Let's consider statement (2). If Kapil took 5 wickets and Binni took 3 wickets, then from equation above, Madanlal should have taken two-and-a-half wickets which is impossible. Hence, Madanlal took one more than Binni i.e. $M = B + 1$

Substitute $M = B + 1$ in first equation,

$$K + 2M = 3B + 1$$

$$K + 2(B + 1) = 3B + 1$$

$$K + 2B + 2 = 3B + 1$$

$$K = B - 1$$

Now consider statement (1). If Kapil took half the wickets i.e. 5 wickets, Binni should have taken 6 wickets and Madanlal should have taken 7 wickets. But this is impossible as there are just 10 wickets. Hence, one player was run out and total wickets taken by them must be 9.

$$K + M + B = 9$$

$$(B - 1) + (B + 1) + B = 9$$

$$B = 3 \text{ wickets.}$$

Hence, wickets taken by Kapil, Madanlal and Binni are 2, 4 and 3 respectively.

There are 2 more possible answers as total number of wickets fallen is not specified. In the above answer, we assumed maximum wickets i.e. 10.

- 10 wickets : Kapil=2, Madanlal=4, Binni=3, Runout=1
- 7 wickets : Kapil=1, Madanlal=3, Binni=2, Runout=1
- 4 wickets : Kapil=0, Madanlal=2, Binni=1, Runout=1

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.

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

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

S O M E

+ G O O D

I D E A 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 S, no other letter can be 3 and all other S in the puzzle must be 3.

Answer

By just looking at the teaser, one can guess that I must be 1.

Now, take the right side of the teaser i.e. $E + D = S$ and take the left side of the teaser i.e. $S + G = D$. Here note that $S + G$ should be greater than 11 as E or D can not be 0 ($E + D = S$) and I is 1.

With trial and error, and also by applying such constraints, we get

8 7 9 5

+ 4 7 7 3

1 3 5 6 8

Brain Teaser No : 00436

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.

Submitted by : Angela Parr

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.

At the party there were 19 females, 12 males, 14 adults and 17 children. Then I arrived and the number of different man-woman couples possible became equal to the number of boy-girl couples possible.

Who am I - a man, a woman, a boy or a girl?

Note that if there were 9 boys and 8 girls at the party, then there would have been 72 (9x8) boy-girl couples possible.

Answer

I am a Girl and there were 9 men, 5 women, 3 boys and 14 girls before I arrived at the party.

Before I arrived, let M be the number of male adults (men) at the party.
Then, the number of female adults (women) = 14 - M
The number of boys = 12 - M
The number of girls = 5 + M

Now, I arrived at the party and I am either a man or a woman or a boy or a girl. Let's consider each case one-by-one.

Case I: Let's assume that I am a Man. It is given that after I arrived, the number of different man-woman couples possible became equal to the number of boy-girl couples possible.
Hence,

$$(M + 1) * (14 - M) = (12 - M) * (5 + M)$$

$$14M - M^2 + 14 - M = 60 + 12M - 5M - M^2$$

$$13M + 14 = 60 + 7M$$

$$6M = 46$$

This is impossible as the value of M must be integer.

Case II: Let's assume that I am a woman, then the equation is

$$(M) * (15 - M) = (12 - M) * (5 + M)$$

$$15M - M^2 = 60 + 12M - 5M - M^2$$

$$15M = 60 + 7M$$

$$8M = 60$$

This is also impossible as the value of M must be integer.

Case III: Let's assume that I am a boy, then the equation is

$$(M) * (14 - M) = (13 - M) * (5 + M)$$

$$14M - M^2 = 65 + 13M - 5M - M^2$$

$$14M = 65 + 6M$$

$$8M = 65$$

This is also impossible as the value of M must be integer.

Case IV: Let's assume that I am a girl, then the equation is

$$(M) * (14 - M) = (12 - M) * (6 + M)$$

$$14M - M^2 = 72 + 12M - 6M - M^2$$

$$14M = 72 + 6M$$

$$8M = 72$$

$$M = 9$$

Thus, I am a Girl and there were 9 men, 5 women, 3 boys and 14 girls before I arrived at the party

Find next number in the series :

3, 7, 31, 211, ?

Answer

1831

All the numbers in the series are Prime Numbers. So the next number will also be a prime number.

Two consecutive numbers in the series (A and B)	Total Prime numbers bewtween A and B (C)	Prime number just before B (D)	E = (C + D)
3 and 7	1	5	6
7 and 31	6	29	35
31 and 211	35	199	234

- Number after 7 is the prime number on skipping 6 prime numbers after 7 i.e. 31
- Number after 31 is the prime number on skipping 35 prime numbers after 31 i.e. 211
- Hence, number after 211 is the prime number on skipping 234 prime numbers after 211 i.e. **1831**

The other possible answer is 1891.

Subtract 1 from each number in the given series: 2, 6, 30, 210

First number = $2 \times 1 = 2$

Second number = $2 \times 3 = 6$

Third number = $6 \times 5 = 30$

Fourth number = $30 \times 7 = 210$

Fifth number = $210 \times 9 = 1890$

Sixth number = $1890 \times 11 = 20790$

Thus, the pattern is : multiply previous number by next odd number and add one to the multiplication. Thus, the series is 3, 7, 31, 211, 1891, 20791, ...

Thanks to N. Anand for this much more simpler answer.

Annie, Bunnie, Candy and Dina visited Edy on 14th February.

1. The time of each visit was as follows:
 - Annie at 8:00
 - Bunnie at 9:00
 - Candy at 10:00
 - Dina at 11:00Each time mentioned above may be either AM or PM.
2. Candy did not visit Edy between Bunnie and Dina.
3. At least one female visited Edy between Annie and Bunnie.
4. 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)

Decipher this sentence.

H S E N O W S J S U D , Z Q ' T

E R K V Z K W Z T J ; H S E N O W S J

Q A S , Z Q ' T W D T D K W H P

Answer

Start with ZQ'T it must be "it's". That leaves ERKVZKWZTJ ending with "is_". The last letter must be "m" (as "t" or "h" is not possible after few try). It leaves 4-letter word OWSJ ending with "m". Try some common words and "from" will fit. Similarly, try some trial-n-error for the remaining words.

HSEN OWSJ SUD, ZQ'T

copy from one, it's

ERKVZKWZTJ; HSEN OWSJ

plafiarism; copy from

QAS, ZQ'T WDTDKWHP

two, it's research

What are the next two numbers in the series?
34, 58, 56, 60, 42, 52, 65, ?, ?

Answer

The next two numbers are 49 and 42.

The pattern is : the totals of the letters in the words ONE, TWO, THREE, FOUR, FIVE, SIX, SEVEN, EIGHT and NINE when A=1, B=2, C=3, D=4 and so on.

First number = 15(O) + 14(N) + 5(E) = 34

Second Number = 20(T) + 23(W) + 15(O) = 58

Third Number = 20(T) + 8(H) + 18(R) + 5(E) + 5(E) = 56

Fourth Number = 6(F) + 15(O) + 21(U) + 18(R) = 60

Fifth Number = 6(F) + 9(I) + 22(V) + 5(E) = 42

Sixth Number = 19(S) + 9(I) + 24(X) = 52

Seventh Number = 19(S) + 5(E) + 22(V) + 5(E) + 14(N) = 65

Eight Number = 5(E) + 9(I) + 7(G) + 8(H) + 20(T) = 49

Ninth Number = 14(N) + 9(I) + 14(N) + 5(E) = 42

Three friends check into a hotel for the night and the clerk tells them the bill is Rs. 30, payable in advance. So, they each pay the clerk RS. 10 and go to their room.

A few minutes later, the clerk realizes he has made an error and overcharged the trio by Rs 5. He asks the hotel-boy to return Rs. 5 to the 3 friends who had just checked in. The hotel-boy sees this as an opportunity to make Rs. 2 as he reasons that the three friends would have a tough time dividing Rs. 5 evenly among them; so he decides to tell them that the clerk made a mistake of only Rs. 3, giving a rupee back to each of the friends. He pockets the leftover Rs. 2 and goes home for the day!

Now, each of the three friends gets a rupee back, thus they each paid Rs. 9 for the room which is a total of Rs. 27 for the night. We know the hotel-boy pocketed Rs. 2 and adding that to the Rs. 27, you get Rs. 29, not Rs. 30 which was originally spent.

Where did the other rupee go???

Answer

The facts in this riddle are clear: There is an initial Rs. 30 charge. It should have been Rs. 25, so Rs.5 must be returned and accounted for. Rs. 3 is given to the 3 friends, Rs. 2 is kept by the hotel-boy - there you have the Rs. 5.

The trick to this riddle is that the addition and subtraction are done at the wrong times to misdirect your thinking - and quite successfully for most. Each of the 3 friends did indeed pay Rs. 9, not Rs. 10, and as far as the friends are concerned, they paid Rs. 27 for the night. But we know that the clerk will tell us that they were charged only Rs. 25 and when you add the Rs. 3 returned with the Rs. 2 kept by the hotel-boy, you come up with Rs. 30

The Viva Girls are a new pop group from the Orient. Their nicknames are Old Viva (the eldest), Cold Viva (never gives anything away), Gold Viva (all rings and bangles), Bold Viva (the leader), and Told Viva (the youngest at 40 and always headed around)

Mai Tai comes from China and is not best friends with Free Lee, who is from Taiwan. The girl from Japan is 20, a year older than the girl addicted to jewelry. Bold Viva and Gold Viva are the best of friends. Wee Pee is 3 years older than Yum Yum. Although the girls are all different ages the eldest is still only 22. Wing Ding is younger than Cold Viva. Mai Tai is 2 years older than the leader who is older than girl from Korea.

What is the name of the girl from Java?

Answer

Wee Pee, nicknamed Cold Viva, is the girl from Java.

Using method of elimination, following can be deduced:

	Age	Nick name	Country
Old Viva	22	Mai Tai	China
Cold Viva	21	Wee Pee	Java
Gold Viva	19	Free Lee	Taiwan
Bold Viva	20	Wing Ding	Japan
Told Viva	18	Yum Yum	Korea

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 easily understood by the fig. and hence solved.

Submitted by : Vaibhav Gupta

Answer

$$\text{---} = \text{IE} \quad \text{---} = \text{IE} \quad \text{---} = \text{IE}$$

$$\begin{array}{ccc} 3 & 6 & 9 \end{array}$$

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 $\text{GHI} = 9 * \text{IE}$. 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 $\text{DEF} = 6 * \text{IE}$. Out of three short-listed values, only 73 satisfies the equation. Also, $\text{ABC} = 3 * \text{IE}$ is satisfied by 73.

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

$$\begin{array}{ccc} 219 & 438 & 657 \end{array}$$

$$\text{---} = 73 \quad \text{---} = 73 \quad \text{---} = 73$$

$$\begin{array}{ccc} 3 & 6 & 9 \end{array}$$

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.

Submitted by : Kristin Monroe

Answer

There are 55 squares in a 5 by 5 grid.

There are 25 squares of one grid.

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 = $5^2 + 4^2 + 3^2 + 2^2 + 1^2 = 55$

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

```

      H I L
    -----
  I L | P H I L

      | I L
    -----

      T I
      L S
    -----
      H I L
      H I L
    -----

      0 0 0
  
```

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 9 for the letter H, no other letter can be 9 and all other H in the puzzle must be 9.

Submitted by : Calon

Answer

S=0, H=1, I=2, P=3, L=5, T=6

It is obvious that H=1 and S=0.

Now, $(11-L) = T$ and $(T-L)=1$ i.e. L=5 and T=6.

Solving further, I=2 and hence P=3.

H I L	1 2 5
-----	-----
I L | P H I L	2 5 | 3 1 2 5
| I L	| 2 5
-----	-----
T I	6 2
L S	5 0
-----	-----
H I L	1 2 5
H I L	1 2 5
-----	-----
0 0 0	0 0 0

Raj has a jewel chest containing Rings, Pins and Ear-rings. The chest contains 26 pieces. Raj has $2\frac{1}{2}$ 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 $2\frac{1}{2}$ times as many rings as pins.

$$R = (5/2) * P \text{ or } P = (2*R)/5$$

And, the number of pairs of earrings is 4 less than the number of rings.

$$E = R - 4 \text{ or } R = E + 4$$

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

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 $\frac{2}{15}$ ($\frac{1}{3} - \frac{1}{5}$) of the distance in 10 minutes.

At 4:15 PM, he has already travelled $\frac{1}{3}$ of the distance. Thus $\frac{2}{3}$ of the way is remaining, which can be travelled in

$$= (\frac{2}{3} * 10) / (\frac{2}{15})$$

$$= 50 \text{ minutes}$$

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.

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

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

An old tea merchant in New York's Chinatown was trying to figure out how to divide 20 pounds of tea into 2-pound packets using a simple balance scale. But this merchant could only find two weights around the shop - one was 5 pounds and the other was 9 pounds.

Can you figure out how he did it?

Submitted by : Johnny B. Good

Answer

There are many ways to do it.

Method I

1. Get 4 pounds of tea using 9-pound and 5-pound weights.
2. Using the balance, divide this 4 pounds of tea into 2 equal parts of 2 pounds each.
3. Using this 2-pound tea packet as a make-shift weight, divide the remaining tea into 9 packets of 2-pounds each.

Method II

1. Using 9-pounds weight, get 9 pounds of tea.
2. Using 9-pounds weight again, get another 9 pounds of tea from remaining 11 pounds.
3. Now we have 2 pounds of tea. Make a packet of it.

3. Now we have 2 pounds of tea. Make a packet of it.
4. Using this 2-pound tea packet as a make-shift weight, divide the remaining tea into 9 packets of 2-pounds each.

What are the next two letters in this sequence?

A, B, H, F, M, C, I, G, T, D, O, ?, ?

Answer

The next letters in the sequence are J, U, E, X etc.

A is the first letter of the alphabet with symmetry about the vertical axis. B is the first letter of the alphabet with symmetry about the horizontal axis. H is the first letter of the alphabet with symmetry about both, the vertical axis and the horizontal axis. F is the first letter of the alphabet with no symmetry.

The sequence then repeats with the second letter of the alphabet with symmetry about the vertical axis, the horizontal axis, both the axes and no axes i.e. M, C, I and G

The third letters of the alphabet are T, D, O and J.

The fourth letters of the alphabet are U, E, X and L.

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 , $2 \leq n \leq 9$.
- 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

Do you know the missing number in the given series?

10, 11, 12, 13, 14, 15, 16, 17, 20, 22, 24, ____, 100, 121, 10000

Answer

The missing number is 31.

The pattern is - Sixteen in the base n for $n = 16, 15, \dots, 2$.

16 in the base 16 = 10
16 in the base 15 = 11
16 in the base 14 = 12
16 in the base 13 = 13
16 in the base 12 = 14
16 in the base 11 = 15
16 in the base 10 = 16
16 in the base 9 = 17
16 in the base 8 = 20
16 in the base 7 = 22
16 in the base 6 = 24
16 in the base 5 = 31
16 in the base 4 = 100
16 in the base 3 = 121
16 in the base 2 = 10000

Thus, the complete series is - 10, 11, 12, 13, 14, 15, 16, 17, 20, 22, 24, 31, 100, 121, 10000

Decipher this sentence.

BRWQH LFKW HJK QIBWK

QICEDW ZBG WKK MIKE

ZBG QHSK ZBGJ KZKW

BUU ZBGJ DBHFW.

Answer

Start with ZBG and ZBGJ. It should be either "the/then" or "you/your" combination as they appear more.

BRWQHLLFKW HJK QIBWK

obstacles are those

QICEDW ZBG WKK MIKE

things you see when

ZBG QHSK ZBGJ KZKW

you take your eyes

BUU ZBGJ DBHFW.

off your goals.

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.

A man walked one mile south. Then he walked one mile east. Then he walked one mile north. He realized he was exactly where he started. Just then, he was attacked by a bear.

What color was the bear?

Submitted by : Rachel Kalmin

Answer

White - a polar bear.

The man travels one mile south(down), one mile east(right), and one mile north(up) - a square with the top side missing is made. If he ended where he started, the shape has to form a triangle. The only place on earth that can have three equal distances travelled, each at a ninety degree angle, is if you start at the north pole. And only polar bears live that far north, so the bear is white.

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.

Submitted by : Ryan Hutcherson

Answer

0-represents a Liar
1-represents a Truth Teller

A B C D

0 0 1 1 A and B are Liars

0 1 0 1 A and C are Liars

0 1 1 0 A and D are Liars

1 0 0 1 B and C are Liars

1 0 1 0 B and D are Liars

1 1 0 0 C and D are Liars

As you can see there are 6 possible cases. If you give only yes or no questions and get only yes or no responses the best you can do is eliminate half of the cases for every question asked. That means after asking the first question the best (worst case) scenario you can end up with is to eliminate all but three cases. That means that the next question addresses three cases and can at best eliminate only 1!

That means that you cannot solve this in 2 questions "giving only yes or no questions and get ONLY yes or no responses". The trick is to ask a question that has the potential of being answered with: "yes", "no", or no response at all.

First Question

Ask A: is B a Truth teller AND is C a Liar.

(Asking A: does B=1 AND does C=0)

if answer to first Question is YES: then do {PART 1}

if answer to first Question is NO: then skip to {PART 2}

-----{PART 1}-----

we know it is one of the following scenarios:

A B C D

0 0 1 1

1 1 0 0

0 1 1 0

Second Question:

Ask C: Let's assign a value of 0 for every Liar and a value of 1 for every Truth teller in the room. Let's also suppose that B has a secret number in his head that **ONLY HE KNOWS**. All we know about this number is that it is greater than 0, less than 2, and is not an integer. Would B say that the sum of A and B is greater than the secret number he is thinking of?

(Asking C: would B say $(A+B) > n$; where $0 < n < 2$ and n is not an integer)

If C answers YES:

A B C D

0 0 1 1 A and B are the Liars

If A and B are Liars then their sum $(0+0)$ will 0. We know the number B is thinking of is greater than 0. Therefore B will lie and say YES. C will tell us the truth of what B would say and so he says YES.

If C answers NO:

A B C D

1 1 0 0 C and D are the Liars

If A and B are Truth tellers then their sum $(1+1)$ will 2. We know the number B is thinking of is less than 2. Therefore B will tell the truth and say YES. HOWEVER, C will LIE about what B will say and his response will be NO.

IF C DOESN'T answer:

A B C D

0 1 1 0 A and D are the Liars

If A is a liar and B is a Truth teller then their sum (0+1) will 1. We know the number B is thinking of is less than 2 and greater than 0 but ONLY B KNOWS for sure what its value is. Therefore C does not know for sure what B will say (even though he knows it will be the truth). Therefore C doesn't answer because if he did he could run the risk of telling a lie which, of course, he never does. [ALL DONE]

-----{PART 2}-----

We know it is one of the following scenarios:

A B C D

1 0 0 1

1 0 1 0

0 1 0 1

Second Question:

Ask C: Let's assign a value of 0 for every Liar and a value of 1 for every Truth teller in the room. Let's also suppose that B has a secret number in his head that ONLY HE KNOWS. All we know about this number is that it is greater than 0, less than 2, and is not an integer. Would B say that the sum of D and B is greater than the secret number he is thinking of?

(Asking C: would B say $(D+B) > n$; where $0 < n < 2$ and n is not an integer)

If C answers YES:

A B C D

1 0 1 0 B and D are the Liars

If D and B are Liars then their sum (0+0) will 0. We know the number B is thinking of is greater than 0. Therefore B will lie and say YES. C will tell us the truth of what B would say and so he says YES.

If C answers NO:

A B C D

0 1 0 1 A and C are the Liars

If D and B are Truth tellers then their sum (1+1) will 2. We know the number B is thinking of is less than 2. Therefore B will tell the truth and say YES. HOWEVER, C will LIE about what B will say and his response will be NO.

IF C DOESN'T answer:

A B C D

1 0 0 1 B and C are the Liars

If B is a liar and D is a Truth teller then their sum (0+1) will 1. We know the number B is thinking of is less than 2 and greater than 0 but ONLY B KNOWS for sure what its value is. Therefore C does not know for sure what B will say (even though he knows it will be a lie). Therefore C doesn't answer because if he did he could run the risk of telling the truth which, of course, he never does. [ALL DONE]

Thanks to Ryan Hutcherson !!!

Here is one more valid answer (and much more simpler) from Carmel.

Lets call our people A, B, C & D

T = always tells the truth

L = always lies

"Same" means both liars or both truth-tellers.

"Different" means one is a liar and one tells the truth.

Ask D "IF A AND B ARE DIFFERENT, is A a truth-teller?"

If D answers yes,

Ask A "Are B and C the same?"

If A answers yes

A=T, B=L, C=L, D=T

If A answers no

A=L, B=T, C=T, D=L

If D answers no,

Ask A "Are B and D the same?"

If A answers yes

A=T, B=L, C=T, D=L

If A answers no

A=L, B=T, C=L, D=T

If D doesn't answer, then it means that

A and B are the same.

Ask A "Are C & D the same?"

If A answers yes,

A=T, B=T, C=L, D=L

If A answers no,

A=L, B=L, C=T, D=T

Explanation: there are six different outcomes, you only get 2 questions. The questions can only be answered yes or no. There is no stipulation that anyone MUST answer a question.

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 arrangements.

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 fourth 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
 $= 5 * 4 * 3 * 2 * 1$
 $= 120$

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 husband's age. He is of course older than me. Also, the difference between our age is $\frac{1}{11}$ th 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 husband's age is $(10Y + X)$ years.

It is given that difference between their age is $\frac{1}{11}$ th of the sum of their age. Hence,

$$[(10Y + X) - (10X + Y)] = \left(\frac{1}{11}\right)[(10Y + X) + (10X + Y)]$$

$$(9Y - 9X) = \left(\frac{1}{11}\right)(11X + 11Y)$$

$$9Y - 9X = X + Y$$

$$8Y = 10X$$

$$4Y = 5X$$

Hence, the possible values are $X=4$, $Y=5$ and Esha's age is 45 years.

Two people enter a race in which 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?

Submitted by : Amy

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!!!

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.

Which of the following day(s) can't be the last day of a century?

Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, Saturday

Justify your answer.

Answer

The last day of a century can not be Tuesday, Thursday or Saturday.

A normal year has 365 days whereas a leap year has 366 days. Every year which is divisible by 4 is called a leap year. Also, **every 4th century is a leap year but no other century is a leap year.**

1 normal year = 365 days = 52 weeks + 1 day

1 leap year = 366 days = 52 weeks + 2 day

Thus, **a normal year has 1 odd day whereas a leap year has 2 odd days.**

100 years

= 76 normal years + 24 leap years

= $76 \times [52 \text{ weeks} + 1 \text{ day}] + 24 \times [52 \text{ weeks} + 2 \text{ day}]$

= $(76 \times 52) \text{ weeks} + 76 \text{ days} + (24 \times 52) \text{ weeks} + 48 \text{ days}$

= 5200 weeks + 124 days

= 5217 weeks + 5 days

i.e. 100 years contain 5 odd days

Similarly,

200 years contain 10 odd days i.e. 3 odd days.

300 years contain 15 odd days i.e. 1 odd days.

400 years contain $(20+1)$ odd days i.e. 0 odd days.

Note that 400 years contain one more leap year.

Also, we have Sunday for 0 odd day, Monday for 1 odd day, Tuesday for 2 odd days, and so on...

Thus, last day of first century is Friday. (5 odd days)

Last day of second century is Wednesday. (3 odd days)

Last day of third century is Monday. (1 odd days)

Last day of fourth century is Sunday. (0 odd days)

Since the order is repeating in successive cycles, the last day of a century can not be Tuesday, Thursday or Saturday.

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.

How are they related to each other?

Answer

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

A(male) --- C(female) --- D(male)

|

|

B(male)

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.

The floor area of Milan's house is 1007 square feet. The space diagonal of the house is 59.75 feet.

What will be the height of the house? Note that floor is rectangle in shape. Also, length and width are integer.

Answer

20 feet

The floor area is 1007 square feet. The only possible floor dimension is 19 by 53. Thus the floor diagonal is 56.3 feet.

The space diagonal is 59.75 feet which makes right-angled triangle with floor diagonal and height. Hence, the height of the house is 20 feet.

The population of an island consists of two and only two types of people : the knights, who invariably tell the truth and the knaves who always lie.

Three of the inhabitants called X, Y and Z were standing together. A newcomer to the

island asked, "Are you a knight or a knave?" X mumbled his answer rather indistinctly, so the stranger could not quite make out what he had said. The stranger then asked Y, "What did X say?" Y replied, "X said that he was a knave." Whereupon Z said, "Don't believe Y, he's lying." What are Y and Z?

- Suppose that the stranger asked X, instead, "How many knights among you?" Again X replies indistinctly. So the stranger asks Y, "What did X say?" Y replies, "X said that there is one knight among us." Then Z says, "Don't believe Y, he is lying!" Now what are Y and Z?
- There are only two inhabitants, X and Y. X says, "At least one of us is a knave." What are X and Y?
- Suppose X says, "Either I am a knave, or Y is a knight?" What are X and Y?
- Consider once more X, Y and Z each of who is either a knight or a knave. X says, "All of us are knaves." Y says, "Exactly one of us is a knight." What are X, Y and Z?

Answer

Teaser 1 : A Simple one. The statement made by Y is false - "X said that he was a knave".

	Case 1	Case 2	Case 3	Case 4
X	Knight	Knight	Knave	Knave
Y	Knight	Knave	Knight	Knave

Analyse the above 4 cases. In all the cases statement made by Y is contradictory and therefore false. Hence, Y is Knave and Z is Knight.

Teaser 2 : Again the statement made by Y is false - "X said that there is one knight among us". Analyse these statement with 4 possible cases as above. In all the cases statement made by Y is false. Hence, Y is Knave and Z is Knight.

Teaser 3 : X is Knight and Y is Knave.

Teaser 4 : Both are Knight.

Teaser 5 : X and Z are Knaves, Y is Knight.

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.

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.

Submitted by : Eamon

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 ${}^{64}P_2 = 64 \times 63 = 4032$ 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 = $64 \times 14 = 896$ 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.

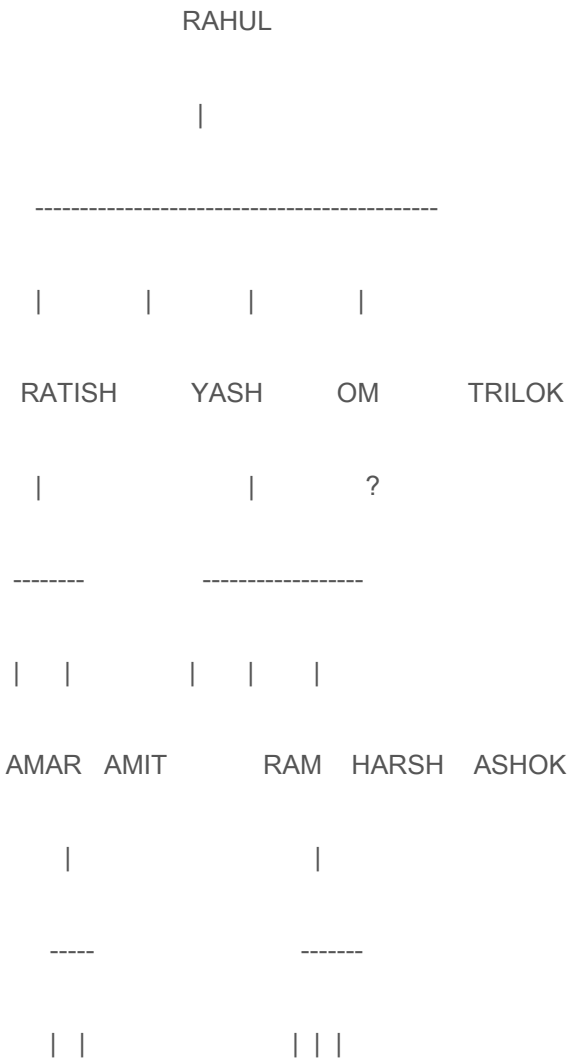
If the bishop is in one of the outer 28 squares, then it can attack 7 positions. If the bishop is in one of the 20 squares at next inner-level, then it can attack 9 positions. Similarly if the bishop is in one of the 12 squares at next inner-level, then it can attack 11 positions. And if the bishop is 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
= $28 \times 7 + 20 \times 9 + 12 \times 11 + 4 \times 13$
= 560 ways

Thus, the required probability is
 $= (896 + 560) / 4032$
 $= 13/36$
 $= 0.3611$

Brain Teaser No : 00566

Here is the family tree of Mr. RAHUL



How many children does Mr. TRILOK have?

Answer

TRILOK have 5 children.

Name of the person and number of his children are related by some pattern.

Assign each vowel following values.

A=0 E=1 I=2 O=3 U=4

The number of children to any person is the sum of the values represented by vowels in his name.

RATISH = $0(A) + 2(I) = 2$

OM = $3(O) = 3$

AMIT = $0(A) + 2(I) = 2$

ASHOK = $0(A) + 3(O) = 3$

TRILOK = $2(I) + 3(O) = 5$

Hence, TRILOK have 5 children.

A cricket team of 11 players lined up in a straight line to have their photograph. The captain was asked to stand in the center of the line-up.

- 1) Bharat and Bhavin stood to the right of the captain
- 2) Two players stood between Bhagat and Bhairav
- 3) Seven players stood between Bhadrik and Bhanu
- 4) Bhavesh stood to the right of Bhuvan
- 5) Bhola and Bhumit stood either side of Bhagat
- 6) Bhavik and Bhumit stood to the left of the captain
- 7) Six players stood between Bhavin and Bhagat
- 8) Two players stood between Bhagat and Bhavik

Who is the captain? Can you tell the positions of all the players?

Answer

Players from left to right : Bhavik, (Bhadrik/Bhanu), (Bhola/Bhumit), Bhagat, (Bhola/Bhumit), BHUVAN, Bhairav, (Bharat/Bhavesh), (Bharat/Bhavesh), (Bhadrik/Bhanu), Bhavin

Let's number the positions 1 to 11 from left to right. Hence, the captain is at position 6. Now, looking at the clues 7, 5, 2 and 8 together:

Position 1 - Bhavik or Bhairav

Position 3 - Bhumit or Bhola

Position 4 - Bhagat

Position 5 - Bhumit or Bhola

Position 7 - Bhavik or Bhairav

Position 11 - Bhavin

From clue (3), the only possible positions for Bhadrik and Bhanu are Position 2 and Position 10.

Now there are 3 positions remaining - 6, 8 and 9 and remaining 3 players are Bhuvan, Bharat and Bhavesh. But from clue (1), Bharat stood to the right of the captain i.e. Bharat must be on position 8 or 9 as position 6 is for the captain. So either Bhuvan or Bhavesh is the captain.

From (4), Bhavesh stood to the right of Bhuvan. Hence, Bhuvan is the captain.

Players from left to right are : Bhavik, (Bhadrik/Bhanu), (Bhola/Bhumit), Bhagat, (Bhola/Bhumit), BHUVAN, Bhairav, (Bharat/Bhavesh), (Bharat/Bhavesh), (Bhadrik/Bhanu), Bhavin.

Thus,

- Bhavik(1), Bhagat(4), Bhuvan(6), Bhairav(7) and Bhavin(11) are the players whose positions are fixed.
- Bhadrik and Bhanu are at position 2 or 10.
- Bhola and Bhumit are at position 3 or 5.
- Bharat and Bhavesh are at position 8 or 9.

Brain Teaser No : 00518

Write 1111.....(243 times) i.e. a 243 digit number with all 1s.

Prove that it is divisible by 243.

Submitted by : Simat Goyal

Answer

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 divisible by 3.
e.g. 369: $3+6+9=18$: $1+8=9$ which is a multiple of 3 hence 369 is divisible 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.

.....

e.g. if $N=369$ then $D=3$, $P=1001001$ and $N \cdot P=369369369$

Let's start with $N=111$. It is clear that N is divisible by 3. (From [1])

Also, $D=3$ and $P=1001001$

$N \cdot P=111111111$ (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 $P=1000000001000000001$

$N \cdot P=111111111\ldots$ (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 $N=1111111\ldots$ (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 $N=1111111\ldots$ (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.

Thanks to Ryan Hutcherson for solution !!!

Mrs. Watsurface had a garage sale. A customer 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?

Submitted by : Kimi

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

Can you decode the following Cryptogram?

R K A P B R G S G X R R K G J N X

RKGX GX RKA ZAXR PT

UII YPFIEX. RKA BAXXGSGXR

TAUFX RKGX GX RFDA.

Answer

There are two statements in the given cryptogram, both are starting with RKA. It must be "THE". Also, there are words like RKGX and GX, which must be "THIS" and "IS" respectively.

TAUFX RKGX GX RFDA.

FEARS THIS IS TRUE.

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?

Submitted by : Cake

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

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.

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

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

know everything.

Now $(N - 4)$ telephone calls are required 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.

1. W will call up X.
2. Y will call up Z.
3. W, who knows WX will call up Y, who knows YZ.
4. X, who knows WX will call up Z, who knows YZ.

Take 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.

1. J will call up K.
2. L will call up M.
3. M will call up N. Now M and N know LMN.
4. J, who knows JK will call up M, who knows LMN.
5. K, who knows JK will call up N, who knows LMN.
6. L will call up to anyone of four.

A camp-fire was attended by 49 friends. After shaking hands, each of them sat on the round table and clinked their mug with the friends to his immediate left and immediate right.

How many times did the mugs clink?

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.

A man is looking at a picture, in his mother's, only brother's, nephew's house.

Someone walks by this man and asks "Who are you looking at?". The man answered "I am looking at my daughter's, only brother's, mother's, father's son-in-law's, son's, father's picture. Also, neither I nor my wife have brothers or sisters."

Whose house is the man in and who is he looking at?

Submitted by : Hannah Brooks

Answer

Man's mothers only brother's nephew is the man himself as man do not have any brothers or sisters. Thus, he is in his house.

Man's daughter's only brother = his son

Son's mother = his wife

Wife's father's son-in-law = man himself (as his wife do not have any brothers or sisters)

Again, man's son's father is himself.

Hence, the man is in his own house and looking at his own picture !!!

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

A L E

C A R | E A R L Y

| C A R

R F F L

I L Y I

Y Y I Y

Y Y A U

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, i.e. if you substitute 0 for the letter X, no other letter can be 0 and all

other Y in the puzzle must be 3.

Submitted by : Calon

Answer

A simple one !!!

- $A=1$, as $A*CAR=CAR$
- $F=0$, as $A-A=F$ and $R-R=F$
- $I=2$, as $YYIY-YYAU=T$, hence I must be $A+1$
- $R=3$, as $FFFL-ILYI=YYI$, hence R must be $I+1$
- $L=4$, as $FFFL-ILYI=YYI$ and $I=2$
- $Y=5$, as $C13*4=24Y2$
- $C=6$, as $C13*4=2452$
- $E=9$, as $E-C=R$
- $U=7$ and $T=8$

1 4 9

6 1 3 | 9 1 3 4 5

| 6 1 3

3 0 0 4

2 4 5 2

5 5 2 5

5 5 1 7

8

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.

In another galaxy, a certain nation of creatures speak a language known as Algramara. In this language, "harvec tood zevac" means "my tooth hurts", "lavec lina zevac" means "my delicious food", & "zevac corma lina" means "eating my food".

What does "corma harvec zevac tood" mean?

Answer

There are 3 sentences:

1. "harvec tood zevac" means "my tooth hurts,"
2. "lavec lina zevac" means "my delicious food,"
3. "zevac corma lina" means "eating my food."

From (1), (2) & (3) "zevac" means my

From (2) & (3) "lina" means food

So From (3) "corma" means eating

and From (2) "lavec" means delicious

Now, two unknown words are there: "harvec" and "tood" which means tooth or hurts. So there are two options:

1. Eating hurts my tooth
2. Eating tooth my hurts

Only first option makes sense. So "corma harvec zevac tood" means "Eating hurts my tooth"

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.

Submitted by : manojaba

Answer

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.

Few years ago, a Law teacher came across a student who was willing to learn but was unable to pay the fee. The student struck a deal saying, "I would pay your fee the day I win my first case in the court". Teacher agreed and proceeded with the law course.

When the course was finished and teacher started pestering the student to pay up the fee, student reminded the deal and pushed days. Fed up with this, the teacher decided to sue the student in the court of law and both of them decided to argue for themselves.

Did the teacher make the right decision? Will he get his fee from the student?

Answer

This is one of the greatest paradoxes ever recorded in history.

The teacher can put forward his argument saying: "If I win this case, as per the court of law, student has to pay me. And if I lose the case, student will still pay me because he would have won his first case. So either way I will have to get the money".

Equally student can argue back saying: "If I win the case, as per the court of law, I don't have to pay anything to the teacher. And if I lose the case, I don't have to pay him because I haven't won my first case yet. So either way, I am not going to pay the teacher anything".

So once again stuck into Paradox !!!

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.

Submitted by : Kimi

Answer

47 seconds.

To get 48 pieces, the boy has 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.

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.

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.

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 than 4.

Hence the answer - Sam is 41 and Mala is 37

A man received a cheque. The rupees has been transposed for paise and vice versa. After spending 5 rupees 42 paise, he discovered that he now had exactly six times the value of the correct cheque amount.

What amount should he have received?

Answer

He received 6 rupees and 44 paise.

Let's assume that he received a cheque of X rupees and Y paise i.e. $(100X + Y)$

The amount received by him = $100Y + X$

After spending 5 rupees 42 paise, the remaining amount is $(100Y + X - 542)$ which is 6 times the original amount. Thus,

$$(100Y + X - 542) = 6(100X + Y)$$

$$100Y + X - 542 = 600X + 6Y$$

$$94Y = 599X + 542$$

Using trial-n-error, we get $X=6$ and $Y=44$

Hence, he should have received 6 rupees and 44 paise

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

$$= ((52X/10) * 100) / 10X$$

$$= 52 \%$$

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

The answer is **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.

The simplest way is to write a small program. And the other way is trial and error !!!

Find the last digit of summation of the series:

$$1^{99} + 2^{99} + 3^{99} + 4^{99} + \dots + 98^{99} + 99^{99}$$

Answer

The last digit of the series is 0.

We group the sum as follow:

$$(1^{99} + 11^{99} + \dots + 91^{99}) + (2^{99} + 22^{99} + \dots + 92^{99}) + \dots + (9^{99} + 19^{99} + \dots + 99^{99}) + (10^{99} + 20^{99} + 30^{99} + \dots + 90^{99})$$

All the terms in a single group have the same last digit (i.e. last digits of $1^{99} + 11^{99} + \dots + 91^{99}$ are same, is 1, & similarly for the other groups).

Also, there are 10 terms in each group except for the last one. Therefore the last digit of the sum of terms in first 9 groups is 0. (as whatever be the last digit, we have to multiply it by 10) And the last digit of the sum of the terms in the group 10 is obviously 0.

Hence, the last digit of the series is 0.

Find the next two numbers in the given series.

0 2 3 4 5 5 7 6 6 7 11 7 13 9 8 8 17 8 19 9 10 13 23 ? ?

Answer

The next two numbers are 9 and 10.

The pattern is - sum of factors in prime factorization of positive integers starting with 1. Note that 1 is not a Prime number.

Integer	Prime Factorization	Sum
1	-	0
2	2	2
3	3	3
4	2*2	4
5	5	5
6	2*3	5
7	7	7
8	2*2*2	6
9	3*3	6
10	2*5	7
11	11	11
12	2*2*3	7
13	13	13
14	2*7	9
15	3*5	8
16	2*2*2*2	8
17	17	17
18	2*3*3	8
19	19	19
20	2*2*5	9
21	3*7	10
22	2*11	13
23	23	23
24	2*2*2*3	9
25	5*5	10

Hence, the next numbers in the series are 9 10 15 9 11 29 10 31 10 14 19 12 10 37 21 16 11 41 12 43 15 11 25 47 11 14 12

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.

1. If the singer and the dancer are the same sex, then the dancer is older than the singer.
2. If neither the singer nor the dancer is the parent of the other, then the singer is older than the dancer.
3. If the singer is a man, then the singer and the dancer are the same age.
4. If the singer and the dancer are of opposite sex then the man is older than the woman.
5. 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.

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

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.

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 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 prisoners 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?

Submitted by : Anne Hanna

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.

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. O = 1, N = 8, E = 9, T = 7

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

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

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.

Submitted by : Uyaghj

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.

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

$$\text{Ankit's apples} = 3N - 3T = 9T - 3T = 6T$$

$$\text{Tejas's apples} = N + 3T = 3T + 3T = 6T$$

There are 4 novels - Thriller, Mystery, Romance and Science Fiction - written by Ambrose, Richards, Hooper and Walsh, and published by Alpha, Beta, Gamma and Theta not in necessarily in the same order.

- The book by Ambrose is published by Theta.
- The Thriller is published by Alpha.
- The Science Fiction novel is by Hooper and is not published by Gamma.
- The Romance novel is by Walsh.

Who are the Author and the Publisher of each novels?

Answer

(Thriller-Richards-Alpha), (Mystery-Ambrose-Theta), (Romance-Walsh-Gamma), (Science Fiction-Hooper-Beta)

Mystery	Ambrose	Theta
Romance	Walsh	Gamma
Science Fiction	Hooper	Beta

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 circumference of the earth is
 $= 2 * \pi * r$
 $= 2 * \pi * 6400 \text{ km}$
 $= 2 * \pi * 6400 * 1000 \text{ m}$
 $= 2 * \pi * 6400 * 1000 * 100 \text{ cm}$
 $= 1280000000 * \pi \text{ cm}$

where r = radius of the earth, $\pi = 3.141592654$

Hence, the length of the thread is $= 1280000000 * \pi \text{ cm}$

Now length of the thread is increased by 12 cm. So the new length is $= (1280000000 * \pi) + 12 \text{ cm}$

This thread will make one concentric circle with the earth which is slightly away from the earth. The circumference of that circle is nothing but $(1280000000 * \pi) + 12 \text{ cm}$

Assume that radius of the outer circle is $R \text{ cm}$

Therefore,

$$2 * \pi * R = (1280000000 * \pi) + 12 \text{ cm}$$

Solving above equation, $R = 640000001.908 \text{ cm}$

Radius of the earth is $r = 640000000 \text{ cm}$

Hence, the thread will be separated from the earth by

$$\begin{aligned} &= R - r \text{ cm} \\ &= 640000001.908 - 640000000 \\ &= 1.908 \text{ cm} \end{aligned}$$

Arnold bought a brand new car with one extra tyre. Each tyre can sustain for maximum of 1200

If all the tyres were used equally, how far can the car travel?

Answer

The car can travel for 1500 kms.

There are total 5 tyres and each tyre can sustain for maximum of 1200 kms. Thus, total 6000 kms. But a car uses 4 tyres at a time, hence the car can travel for $6000/4 = 1500$ kms.

This can be achieved by rotating the tires every 300 kms.

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.

1. It is Morning and A is Shahrukh
2. It is Morning and A is Salman
3. It is Afternoon and A is Shahrukh
4. It is Afternoon and A is Salman

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 preceding constant value. So, $B = 2^A$ (A's value), or $B = 2^1 = 2$. $C = 3^B = 9$. $D = 4^C$, etc.

Find the exact numerical value to the following equation: $(X - A) * (X - B) * (X - C) * \dots * (X - Y) * (X - Z)$

Answer

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

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

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
 $= 11 + 8 * 20 + 21$
 $= 11 + 160 + 21$
 $= 192$

What are the next three numbers in the given series?

1 1 2 1 2 2 3 1 2 2 3 2 3 3 4 1 2 2 3 2 3 3 4 2 3 3 ?

Answer

--	--	--	--	--	--	--	--	--	--	--	--

The next three numbers in the series are 4, 3, 4.

The pattern is - the number of 1's in the binary expansion of the positive integers starting from 1.

Number	Binary Equivalent	# of 1's
1	1	1
2	10	1
3	11	2
4	100	1
5	101	2
6	110	2
7	111	3
8	1000	1
9	1001	2
10	1010	2
11	1011	3
12	1100	2
13	1101	3
14	1110	3
15	1111	4
16	10000	1
17	10001	2
18	10010	2
19	10011	3
20	10100	2
21	10101	3
22	10110	3
23	10111	4
24	11000	2
25	11001	3
26	11010	3
27	11011	4
28	11100	3
29	11101	4

The other way of looking at it is - break up the series into lines as follows:

The other way of looking at it is - break up the series into lines as follow:

1
1 2
1 2 2 3
1 2 2 3 2 3 3 4
1 2 2 3 2 3 3 4 2 3 3 4 3 4 4 5

A new line can be created by writing previous line followed by the previous line with 1 added to each number

There are 10 statements written on a piece of paper:

1. At least one of statements 9 and 10 is true.
2. This either is the first true or the first false statement.
3. There are three consecutive statements, which are false.
4. The difference between the numbers of the last true and the first true statement divides the number, that is to be found.
5. The sum of the numbers of the true statements is the number, that is to be found.
6. This is not the last true statement.
7. The number of each true statement divides the number, that is to be found.
8. The number that is to be found is the percentage of true statements.
9. 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.
10. There are no three consecutive true statements.

Find the minimal possible number?

Submitted by : Milind Gadagkar

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 2 is false i.e. there are no three consecutive false statements. If

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, at least 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:

1. The number is divisible by 5 (Statement 4)
2. The number is divisible by 2, 3, 4, 6, 7 (Statement 7)
3. 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.

What are the next two numbers in the series?

44 640 500 704 800

Submitted by : Jayn

Answer

The next two numbers are 9100 and 11144.

The pattern is - starting from 1, take 2 consecutive numbers and put the first number with the square of the second numebr.

First number = $1 (2)^2 = 14$

Second number = $3 (4)^2 = 316$

Third number = $5 (6)^2 = 536$

Fourth number = $7 (8)^2 = 764$

Fifth number = $9 (10)^2 = 9100$

Sixth number = $11 (12)^2 = 11144$

Hence, the next two numbers are 9100 and 11144

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?

or cancelled on 5 lines - A, E, I, U and Z except line O

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.

1. **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.
2. **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.
3. **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.
4. **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.

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

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 !!!

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

$$\begin{array}{r} \text{N E V E R} \\ \text{L E A V E} \\ + \quad \text{M E} \\ \hline \text{A L O N E} \end{array}$$

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

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.

1. Miss Shalaka's work requires her to speak on the phone frequently throughout the day.
2. Miss Shudha prefers cabin number 5 as 5 is her lucky number.
3. Mr. Shaan and Mr. Sharma often talk to each other during their work and prefers to have adjacent cabins.
4. Mr. Sinha, Mr. Shaan and Mr. Solanki all smoke. Miss Shudha is allergic to smoke and must have non-smokers adjacent to her.
5. 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,

3# Mr. Shaan,
4# Mr. Sharma,
5# Miss Shudha,
6# Miss Shalaka

$$\text{If } 6 \times 4 = 12$$

$$8 \times 6 = 32$$

$$11 \times 8 = 66$$

$$\text{then } 10 \times 10 = ??$$

Submitted by : Nick Chimenti

Answer

80

The pattern is multiply the first number by second after reducing second number by 2. One can view is as follow:

$$6 \times (4 - 2) = 12$$

$$8 \times (6 - 2) = 32$$

$$11 \times (8 - 2) = 66$$

$$10 \times (10 - 2) = 80$$

What are the next three numbers in the given series?

1 2 3 2 1 2 3 4 2 1 2 3 4 3 2 ? ? ?

Answer

The next three numbers are 3, 4 and 5.

The pattern is - the number of letters in the Roman numeral representation of the numbers i.e. number of letters in I, II, III, IV, V, VI, VII, VIII, IX, X, XI, XII, XIII, XIV, XV,

Hence, the next numbers in the given series are 3(XVI), 4(XVII), 5(XVIII), 3(XIX), 2(XX), 3(XXI), 4(XXII), 5(XXIII), 4(XXIV), 3(XXV), etc...

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?

Submitted by : Nathalie Drouin

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!

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 $3 \times X$ 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

$$3 \times (X - 4) = X$$

$$3 \times X - 12 = X$$

$$2 \times X = 12$$

$$X = 6$$

Therefore the total bullets before division is $= 3 \times X = 18$

A farmer built a fence around his 25 cows in a square region. He built it in such a way that one can see 5 poles from either of the four sides.

What are the minimum number of poles the farmer must have used?

Answer

16 poles

X X X X X

X X

X X

X X X X X

One pole at each corner and three poles along each side so that one can always see 5 poles from either of the four sides. The corner pole is shared by two sides and hence reducing the number of poles to 16.

Two men sit down to eat some bread. One man has three loaves and the other has five loaves.

A stranger comes up to them and says that he will pay them if he can share their bread because he is very hungry.

They all share the bread equally and the stranger is very thankful. He says that he has eight coins of equal value to divide among the two men, but he does not know how to divide them.

The man that brought three loaves says that they should split them evenly, four coins each, because they both shared their bread. The man that brought five loaves disagrees with him and says that they should split the coins five for him and three to the man who brought only three loaves according to the amount of loaves each man brought.

Why are they both wrong, and what is the correct answer?

Answer

Seven for the man that brought five loaves and only one for the man that brought three loaves.

The three men split up the bread evenly i.e. they divided eight loaves by three, or in other words each man gets eight-thirds of a loaf.

Since each man got eight-thirds of a loaf, the man that brought five loaves gave up seven-thirds of his loaves, and the man that brought three loaves only gave up one-third of his loaves.

Each man received a coin for each one-third loaf he gave up. Thus, the man that brought five loaves received seven coins and only the man that brought three loaves received one coin.

It takes Arpita an hour to do the job that Ekta can do in 45 minutes. One day they worked together for 12 minutes then Arpita left for college and Ekta finished the job.

How long did it take her to finish?

Answer

Ekta took 24 minutes to finish the remaining job.

It is given that Arpita takes an hour to do the job. Her work speed is $1/60$ per minute.

Similarly, Ekta takes 45 minutes to do the same job. Hence, her work speed is $1/45$ per minute.

Now, one day they worked for 12 minutes together. Job done in that 12 minutes will be $12 \times (1/60 + 1/45)$

The remaining job is done by Ekta. Let's assume that she took X minutes.

$$12 \times (1/60 + 1/45) + X \times (1/45) = 1$$

$$(7/15) + X \times (1/45) = 1$$

$$21 + X = 45$$

$$X = 24$$

Hence, Ekta took 24 minutes to finish the remaining job

Substitute digits for the letters to make the following multiplication true.

T R Y

x T H I S

O D D I T Y

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 5 for the letter T, no other letter can be 5 and all other T in the puzzle must be 5.

This one looks easier but you'll find it takes some working out, even given that there are no 8 and 9.

Answer

I=0, T=1, O=2, D=3, R=4, Y=5, H=6, S=7

As there are no 8 and 9, T must be 0 or 1. Also, if T is 1, then O must be 2; and if T is 2 then O must be 4, 5, 6 or 7.

Working forward this way and applying trial-n-error:

T R Y	1 4 5
x T H I S	x 1 6 0 7
-----	-----
O D D I T Y	2 3 3 0 1 5

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

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

Submitted by : James Barberousse

Answer

There are total 8 such series:

1. Sum of 2000 numbers starting from -999 i.e. summation of numbers from -999 to 1000.
 $(-999) + (-998) + (-997) + \dots + (-1) + 0 + 1 + 2 + \dots + 997 + 998 + 999 + 1000 = 1000$
2. Sum of 400 numbers starting from -197 i.e. summation of numbers from -197 to 202.
 $(-197) + (-196) + (-195) + \dots + (-1) + 0 + 1 + 2 + \dots + 199 + 200 + 201 + 202 = 1000$
3. Sum of 125 numbers starting from -54 i.e. summation of numbers from -54 to 70.
 $(-54) + (-53) + (-52) + \dots + (-1) + 0 + 1 + 2 + \dots + 68 + 69 + 70 = 1000$
4. Sum of 80 numbers starting from -27 i.e. summation of numbers from -27 to 52.
 $(-27) + (-26) + (-25) + \dots + (-1) + 0 + 1 + 2 + \dots + 50 + 51 + 52 = 1000$
5. Sum of 25 numbers starting from 28 i.e. summation of numbers from 28 to 52.
 $28 + 29 + 30 + 31 + 32 + 33 + 34 + 35 + 36 + 37 + 38 + 39 + 40 + 41 + 42 + 43 + 44 + 45 + 46 + 47 + 48 + 49 + 50 + 51 + 52 = 1000$
6. Sum of 16 numbers starting from 55 i.e. summation of numbers from 55 to 70.
 $55 + 56 + 57 + 58 + 59 + 60 + 61 + 62 + 63 + 64 + 65 + 66 + 67 + 68 + 69 + 70 = 1000$
7. Sum of 5 numbers starting from 198 i.e. summation of numbers from 198 to 202.
 $198 + 199 + 200 + 201 + 202 = 1000$
8. Sum of 1 number starting from 1000.
 $1000 = 1000$

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

Think carefully !!!

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 $7! + 8! + 9! + \dots + 100!$ 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.

Why is it better to have round manhole covers than square ones?

Answer

This is a lateral thinking puzzle. Also, the MOST asked question during interview.

A square manhole cover can be turned and dropped down the diagonal of the manhole. A round manhole cover cannot be dropped down the manhole. So for safety and practicality, all manhole covers should be round.

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.

1. Take 8 coins and weigh 4 against 4.
 - If both are not equal, goto step 2
 - If both are equal, goto step 3

2. 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 initial 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.

- If H4 is heavy, H4 is the odd coin and is heavier.

3. 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

There is a Tibetan monastery filled with a number of monks. The number of monks is more than one, and not unreasonably large.

God visits the monks one night and tells them that he is planning on destroying the world unless they can solve a puzzle. He puts a red dot on the foreheads of a certain number of monks, X. X is greater than zero.

Then he takes away all means of communication between the monks, and all means by which the monks can see themselves. No mirrors, no hand signals, no nothing. A single monk can see all the other monks, and see if another monk has a dot on his head or no, but he cannot see himself, and he cannot communicate in any way with any other monk.

God then says that all of the monks with dots, and only those monks with dots, must jump off of the cliff next to the monastery and sacrifice themselves to save the world, at EXACTLY the same moment, on EXACTLY the same day.

The next morning, all of the monks from the monastery walk out to the edge of the cliff. They pause and look around, and then walk quickly back to the monastery.

The second morning, all of the monks from the monastery walk to the edge of the cliff. They pause, look, and walk back to the monastery.

The third morning, all of the monks walk to the edge of the cliff. And then all of the monks with dots, and only those monks with dots walk to the cliff edge and jump off at the exact same moment.

The question: how many monks jumped, and how did they organize the jump?

Submitted by : George Taylor

Answer

Total 3 monks jumped in, on the third day.

There are two important points. One is that there is atleast one monk with red dot. And the second is that all the monks are intelligent ;-)

On the day 1

If there is only one monk with red dot, he would see all monks without the red dot. So he would know that he is the one and jump in. But no one jumped.

would know that he is the one and jump in. But no one jumped.

On the day 2

Now, all the monks know that there are atleast 2 monks with the red dots. If there are exactly two monks with the red dot, they would see only one monk with the red dot. So they would know that they have to jump in. But no one jumped.

On the day 3

Now, all the monks know that there are atleast 3 monks with the red dots. If there are exactly three monks with the red dot, they would see only two monks with the red dot. So they would know that they have to jump in.

Thus total 3 monks jumped in on the third day.

P.S. If monks jumped in on Nth days, then there are total N monks with the red dots

When we speak of an unstoppable cannonball, we mean that it can't be stopped. When we speak of an immovable pole, we mean that it can't be moved by anything.

What would happen if an unstoppable cannonball hit an immovable pole?

Submitted by : Bob

Answer

The two cannot coexist in the same universe

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.

Submitted by : Sachin Kanekar

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.

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 $18(2 \times 9)$, $24(3 \times 8)$, $28(4 \times 7)$ or $30(5 \times 6)$. 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

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 explanation:

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 !!!

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?

Submitted by : Sarah Flod

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 = $(8!) \times (3^8)/8 = (8!) \times (3^7)$

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

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 two ropes. Each one can burn in exactly one hour. They are not necessarily of the same length or width as each other. They also are not of uniform width (may be thinner/wider in middle than on the end), thus burning half of the rope is not necessarily 1/2 hour.

By burning the ropes, how do you measure exactly 45 minutes worth of time?

Answer

If you light both ends of one rope simultaneously, it will burn in exactly a 1/2 hour. Thus, burn one rope from both ends and the other rope from only one end. Once the one rope (which is burning from both ends) finally burns out (and you know a 1/2 hour has elapsed), you also know that the other rope (which is burning from only one end) has exactly 1/2 hour left to burn. Since you only want 45 minutes, light the second end of the rope. This remaining piece will burn in 15 minutes. Thus, totaling 45 minutes.

There are 10 boxes containing 10 balls each. 9 boxes contain 10 balls of 10 kg each and one box contains 10 balls of 9 kg each. Tool is available for proper weighing. How can you find out the box containing 9 kg balls?

You are allowed to weigh only once. You can remove balls from the boxes. All balls are of same size and color.

Answer

1. Mark the boxes with numbers 1, 2, 3, 4, ... upto 10

4. Now, subtract the measurement from 550 ($1*10 + 2*10 + 3*10 + 4*10 + 5*10 + 6*10 + 7*10 + 8*10 + 9*10 + 10*10$)
5. The result will give you the box number which has a ball of 9 Kg

In Laloo's family, each son has the same number of sisters and brothers. Also, each daughter has twice the number of brothers than sisters.

How many sons and daughters does Laloo have?

Answer

4 sons and 3 daughters

Laloo must be having one more son than daughter, as each son has same number of sisters and brothers. Using this and little trial-and-error, we can get the result i.e. 4 sons and 3 daughters.

Each brother has 3 sisters and 3 brothers.
Each sister has 2 sisters and 4 brothers.

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 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 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 perfectly horizontal pointing towards 3. Whereas hour hand will be towards 4. Also, hour hand must have covered $\frac{1}{4}$ of angle between 3 and 4.

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

Hence $\frac{1}{4}$ of it is 7.5 degrees

Mr. Desai lives at 20, Dabba Street with his wife Shirin. They have have nine sons and each son has one sister.

How many members are in Mr. Desai's family?

Answer

There are total 12 members in Mr. Desai's family. Mr. Desai and his wife Shirin, nine sons and one daughter.

Mr. Desai do not have 9 daughters. There is only one daughter and she is the only sister. If there are 9 daughters, then each son will have 9 sisters and not just a one.

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.

Submitted by : Destructo_girl

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 $52 \times 52 \times 10 \times 10$ 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

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

$$= 52 \times 52 \times 10 \times 10 \times 6$$

$$= 16,22,400 \text{ attempts}$$

$$= 1.6 \text{ million approx.}$$

Thanks to Tim Sanders for opening BrainVista's brain

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

Submitted by : David

Answer

9,46,08,000 babies

The total seconds in year 2001

$$= 365 \text{ days/year} \times 24 \text{ hours/day} \times 60 \text{ minutes/hours} \times 60 \text{ seconds/minute}$$

$$= 365 \times 24 \times 60 \times 60 \text{ seconds}$$

$$= 3,15,36,000 \text{ seconds}$$

Thus, there are 3,15,36,000 seconds in the year 2001. Also, three babies born are every second. Hence, total babies born

$$= 3 \times 3,15,36,000 \text{ seconds}$$

$$= 9,46,08,000$$

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.

1. The first person is a woman.
2. Carlos wants to send an overnight package.
3. Lau is just ahead of Pimentelli who is the same sex as Lau.
4. Gianni is two places ahead of the person who wants to buy stamps.
5. Knutson - who is the opposite sex than Rendler - isn't the person who wanted to complain about a mail carrier.
6. 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.
7. 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.
8. The person who wants to send books fourth class is just behind a person of the same sex.
9. Mary is just behind a person who wants to send an insured package.
10. 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.

11. Anthony isn't two places behind the who wants to pickup a registered letter.
12. Toriseza is two places ahead of the person who wants to pick up a package.
13. 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 in POSITION - FIRST NAME - LAST NAME - BUSINESS format.

Answer

A very TOUGH puzzle !!!

POS	FIRST NAME	LAST NAME	BUSINESS
1	Sachi	Loti	<ul style="list-style-type: none"> • Fill Out a Change-of-Address Form • Add Postage to Meter
2	Gianni	Lau	<ul style="list-style-type: none"> • Pick Up a Registered Letter • Send an Item Parcel Post
3	Carlos	Pimentelli	<ul style="list-style-type: none"> • Overnight Package • Send Airmail to Tibet
4	Donna	Toriseza	<ul style="list-style-type: none"> • Buy Stamps • Send an Insured Package
5	Mary	Knutson	<ul style="list-style-type: none"> • Buy a Money Order • Send Books fourth Class
6	Anthony	Rendler	<ul style="list-style-type: none"> • Complain About a Mail Carrier • Pick Up a Package

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?

Submitted by : Calon

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

$$= \pi * \text{Diameter (or } 2 * \pi * \text{Radius)}$$

$$= \pi * 7$$

$$= 3.14159265 * 7$$

$$= 21.99115$$

$$= 22 \text{ inches approx}$$

Substitute digits for the letters to make the following Division true

L O W

T E A S | W H E R E A S

| W R E L A

O B O A A

T E A S

O H S T S

O H S R T

L O

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 9 for the letter W, no other letter can be 9 and all other W in the puzzle must be 9.

Submitted by : Calon

Answer

B=0, O=1, W=2, L=3, E=4, R=5, H=6, A=7, T=8, S=9 i.e. BOWLER-HATS

It is obvious that O=1 and B=0.

Also, T must be either 8 or 9. But S-T=1. Hence, T=8 and S=9.

Now, everything is easy... E=4, L=3, R=5, W=2, H=6

LOW	312
-----	-----
TEAS|WHEREAS	8479|2645479
|WRELA	|25437
-----	-----
OBOAA	10177
TEAS	8479
-----	-----
OHSTS	16989
OHSRT	16958
-----	-----
LO	31

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.

Submitted by : David

Answer

J or 10

$$D - C = A \text{ i.e. } 4 - 3 = 1$$
$$E - B = C \text{ i.e. } 5 - 2 = 3$$

Thus, our assumption was Correct. Hence, $D + F = J$ i.e. $4 + 6 = 10$

On Sunday, December 22, four ships - W, X, Y, Z - started their series of winter cruises to various ports.

- Ship W left at 4:00 PM on Sunday, December 22, for a series of 8-days cruises to Mandva.
- Ship X left at 4:30 PM on Sunday, December 22, for a series of alternating 11-days and 13-days cruises to Alibaug.
- Ship Y left at 5:00 PM on Sunday, December 22, for a series of 5-days cruises to Kihim.
- Ship Z left on Monday for a series of 7-days cruises.

Each ship is scheduled to return back early in the morning after the last day of the cruise and leave again late in the afternoon of the same day.

On how many days occasions between December 22 and February 28 will three ships be moored at the port?

Answer

On no occasions (other than start date December 22) between December 22 and February 28, three ships will be moored at the port.

Find out the days on when each ship will be in port:

- Ship W will be in port on days 1, 9, 17, 25, 33, 41, 49, 57 and 65.
- Ship X will be in port on days 1, 12, 25, 36, 49, 60 and 73.
- Ship Y will be in port on days 1, 6, 11, 16, 21, 26, 31, 36, 41, 46, 51, 56, 61 and 66.
- Ship Z will be in port on days 1, 2, 9, 16, 23, 30, 37, 44, 51, 58 and 65.

From above data, it is clear that - on no occasion (other than December 22) will three ships be moored at the port.

Also, on 8 occasions, there will be 2 ships moored at the port

There are 4 blocks each with 6 sides. Each side has a letter from the alphabet. No letters are ever repeated. By arranging the blocks in different ways they spell all the words listed below:

BODY, MAZE, CURT, MOVE, DRAW, NOTE, FEAR, PICK, HUNT, QUIT, JOKE, SNOB, KNEW, TYPE, LIFE

Can you figure out how the letters are arranged on the 4 blocks?

Submitted by : Diana Kim

Answer

(C, D, E, H, Q, S), (A, B, K, L, T, V), (F, O, P, U, W, Z), (I, J, M, N, R, Y)

Out of the 26 letters in the alphabet, G and X are not used.

There are 7 words with letter 'E' - MAZE, MOVE, NOTE, FEAR, JOKE, KNEW, TYPE, LIFE. It means that none of the letters in these 7 words can be on the same block as the letter 'E'. Hence, the other 5 letters must be from B, C, D, H, Q, S, U.

As BODY is one of the possible word, B and D can not be on the same block. Similarly, C and U also can not be on the same block as CURT is one of the possible word. Hence, E, H, Q, S are on the same block.

Also, S and B can not be on the same block (SNOB). Q and U can not be on the same block (QUIT). Hence, first Block contains **C, D, E, H, Q, S**

Now, write down 4 rows each with A to Z, except G and X. Take each word one by one, remove not possible letters and circle the possible letters.

The letters on four blocks are:

Block 1 : C, D, E, H, Q, S

Block 2 : A, B, K, L, T, V

Block 3 : F, O, P, U, W, Z

Block 4 : I, J, M, N, R, Y

A stick of length 1 is divided randomly into 3 parts.

What is the probability that a triangle can be made with those three parts?

Answer

The probability, that a triangle can be made by randomly dividing a stick of length 1 into 3 parts, is 25%

A triangle can be made, if and only if, sum of two sides is greater than the third side. Thus,

$$X_1 < X_2 + X_3$$

$$X_2 < X_3 + X_1$$

$$X_3 < X_1 + X_2$$

Also, it is given that $X_1 + X_2 + X_3 = 1$

From above equations: $X_1 < 1/2$, $X_2 < 1/2$, $X_3 < 1/2$

Thus, a triangle can be formed, if all three sides are less than $1/2$ and sum is 1.

Now, let's find the probability that one of X_1 , X_2 , X_3 is greater than or equal to $1/2$.

Note that to divide stick randomly into 3 parts, we need to choose two numbers P and Q, both are between 0 & 1 and P

Now, X_1 will be greater than or equal to $1/2$, if and only if both the numbers, P & Q, are greater than or equal to $1/2$. Thus, probability of X_1 being greater than or equal to $1/2$ is = $(1/2) * (1/2) = 1/4$

Similarly, X_3 will be greater than or equal to $1/2$, if and only if both the numbers, P & Q, are less than or equal to $1/2$. Thus, probability of X_3 being greater than or equal to $1/2$ is = $(1/2) * (1/2) = 1/4$

Also, probability of X_2 being greater than or equal to $1/2$ is = $(1/2) * (1/2) = 1/4$

The probability that a triangle can not be made
= $(1/4) + (1/4) + (1/4)$
= $(3/4)$

Thus, the probability that a triangle can be made
= $1 - (3/4)$
= $(1/4)$
= 25 %

Thus, the probability that a triangle can be made by randomly dividing a stick of length 1 into 3 parts is 25%

Let's generalise the problem. **What is the probability that a polygon with (N+1) sides can be made from (N+1) segments obtained by randomly dividing a stick of length 1 into (N+1) parts?**

The probability is = $1 - (N+1)*(1/2)^N$

The probability tends to 1 as N grows. Thus, it is easier to make a N-sided polygon than it is to make a triangle!!!

There is a blind man, a deaf man, and a man with no arms.

Something falls from the sky, the blind man sees it, the deaf man hears it and the man with no arms picks it up and puts it in his pocket.

What is it?

Submitted by : Joe Leonard

Answer

Nothing

"Nothing" falls from the sky, the blind man sees "Nothing", the deaf man hears "Nothing" and the man with no arms picks "Nothing" up and puts "Nothing" in his pocket

Five executives of a Cultural Committee hold a conference in Mumbai.

Mr. A converses in English and Marathi.

Mr. B converses in Hindi and English.

Mr. C converses in Marathi and Hindi.

Mr. D converses in Hindi and Gujarati.

Mr. E, a native Marathi, can also converse in Gujarati.

If a sixth executive is brought in, to be understood by the maximum number of the original five, he should be fluent in which 2 languages?

Answer

The sixth person should be fluent in Hindi & Marathi.

Find out how many executives can understand each of the language.

Three executives speak Hindi - Mr. B, Mr. C and Mr. D. The other two executives - Mr. A and Mr. E, speak Marathi. Thus, the sixth executive should be fluent in Hindi and Marathi so that original five executives can converse with him.

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 buried deep in dirt up to their necks. The format of their burial 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 countries. 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 soldiers by taking a 50/50 guess!

Submitted by : KWEKU

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

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 anything 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.

Five friends with surname Batliwala, Pocketwala, Talawala, Chunawala and Natakswala have their first name and middle name as follow.

1. Four of them have a first and middle name of Paresh.
2. Three of them have a first and middle name of Kamlesh.
3. Two of them have a first and middle name of Naresh.
4. One of them have a first and middle name of Elesh.
5. Pocketwala and Talawala, either both are named Kamlesh or neither is named Kamlesh.
6. Either Batliwala and Pocketwala both are named Naresh or Talawala and Chunawala both are named Naresh.
7. Chunawala and Natakswala 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 Natakswala are named Kamlesh.

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

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?

Submitted by : Brett Hurrell

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.

1. Take 8 balls and weigh 4 against 4.
 - If both are not equal, goto step 2
 - If both are equal, goto step 3

2. 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 initial 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.

3. 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.

You have someone working for you for seven days and a gold bar to pay them. The gold bar is segmented into seven connected pieces. You must give them a piece of gold at the end of every day.

If you are only allowed to make two breaks in the gold bar, how do you pay your worker?

Answer

Make two breaks such that you get three segments with 1 piece, 2 pieces and 4 pieces and follow as below:

Day 1 : Give a single segment to the worker.

Day 2 : Ask the worker to return the segment you gave him on day 1 and give him the segment with Two connected pieces.

Day 3 : Glve the worker the 1 piece segment you have.

Day 4 : Ask the worker to return all pieces he has (one segment and 2 segment pieces) and give him the segment with 4 pieces on it.

Day 5 : Give him the the segment with 1 piece.

Day 6 : Ask him to return the 1 piece segment and give him the segment with two pieces.

Day 7 : Give him the 1 piece segment you have

A group of 4 people, Andy, Brenda, Carl, & Dana, arrive in a car near a friend's house, who is having a large party. It is raining heavily, & the group was forced to park around the block from the house because of the lack of available parking spaces due to the large number of people at the party.

The group has only 1 umbrella, & agrees to share it by having Andy, the fastest, walk with each person into the house, & then return each time. It takes Andy 1 minute to walk each way, 2 minutes for Brenda, 5 minutes for Carl, & 10 minutes for Dana. It thus appears that it will take a total of 40 minutes to get everyone into the house.

However, Dana indicates that everyone can get into the house in 17 minutes by a different method. How?

The individuals must use the umbrella to get to & from the house, & only 2 people can go at a time (& no funny stuff like riding on someone's back, throwing the umbrella, etc.)

Answer

There are 2 possible answers, both of which are almost the same:

Answer 1: Andy & Brenda walk together to the house (2 minutes), & Andy returns (1 minute). Carl & Dana walk to the house (10 minutes), & Brenda returns with the umbrella (2 minutes). Andy & Brenda walk to the house again (2 minutes).

Answer 2: Andy & Brenda walk together to the house (2 minutes), & Brenda returns (2 minutes). Carl & Dana walk to the house (10 minutes), & Andy returns with the umbrella (1 minute). Andy & Brenda walk to the house again (2 minutes).

Two men go into a restaurant and both have a glass of ice cold coke. The glasses both had the EXACT same contents. There was poison in the glasses. One man drank his coke fast and lived. The other man drank his slow and died.

Why?

Submitted by : Chassity Daniels

Answer

The poison was in the ice or more specifically in the middle of the ice.

The man who drank it fast didn't give the ice time to melt and the poison to get in his drink. So he survived.

But the second man drank it slowly. Thus giving time to the ice to melt and the poison to release in his drink. So he died.

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 daughter 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 possibility is 2 2 9 and the OLDEST daughter is 9 years old.

Therefore, the answer is 9.

Four men - Abraham, Bobby, Clinton and Denial - are standing in a straight line.

1. One man is fair, handsome and unscarred.
2. Two men who are not fair, are each standing next to Abraham.
3. Bobby is the only man standing next to exactly one handsome man.
4. 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, handsome and unscarred. Hence, there are two cases:

handsom and unscarred. Hence, there are two cases:

Case 1 :: ? (N, ?, ?) : Abraham (Y, Y, N) : ? (N, ?, ?) : ? (N, ?, ?)

Case 2 :: ? (N, ?, ?) : Abraham (?, ?, ?) : ? (N, ?, ?) : ? (Y, Y, N)

Note the representation - Name (Fair, Handsome, Scarred). "Y" stands for Yes and "N" stands 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) : ? (N, ?, 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

For a TV talk show on Bollywood, the producer must choose a group of two Directors and two Musicians. At least one of them must be an Actor and at least one a Singer.

1. Available Directors are Mahesh Bhatt, Karan Johar, Subhash Ghai, Aditya Chopra and Ashutosh.
2. Available Musicians are A R Rehman, Annu Malik, Sandeep Chowta and Aadesh Srivastava.
3. Shubash Ghai, A R Rehman and Annu Malik are Actors.
4. Aditya Chopra and Aadesh Srivastava are Singers.
5. A R Rehman will not seat in the same room with Subhash Ghai, and will take part only if Mahesh Bhatt is there.
6. Aditya Chopra refuses to take part with Annu Malik.
7. Ashutosh refuses to take part with Aadesh Srivastava.

How many acceptable groups can the producer put together?

Answer

The producer can put 9 acceptable groups together.

Your basic solution step is to make a table of the possible persons and qualifications on the Musicians side, with the possible combinations on the Directors side.

Note that A R Rehman insists on Mahesh Bhatt being present, but the reverse is not true. Also, remember that there must be at least one actor and at least one singer. The valid combinations are:

Musician

Director

(A R Rehman, Sandeep Chowta) (Mahesh Bhatt, Aditya Chopra)

(A R Rehman, (Mahesh Bhatt, Karan Johar)

Aadesh Srivastava) (Mahesh Bhatt, Aditya Chopra)

(Annu Malik, (Mahesh Bhatt, Karan Johar)

Aadesh Srivastava) (Mahesh Bhatt, Subhash Ghai)

(Karan Johar, Subhash Ghai)

(Sandeep Chowta, (Mahesh Bhatt, Subhash Ghai)

Aadesh Srivastava) (Karan Johar, Subhash Ghai)

(Aditya Chopra, Subhash Ghai)

Thus, there are total 9 acceptable groups.

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.

Submitted by : Calon

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 $U \times \text{STEM} = \text{STEM}$) and $C=0$ (as $I-C=I$).

$S \times O$ is a single digit and also $S \times T$ 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, $\text{STEM} \times O = \text{DMOC}$, 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

-----	-----
STEM|DEMISE	2385|985628
|DMOC	|9540
-----	-----
TUIS	3162
STEM	2385
-----	-----
ZZZE	7778
ZUMM	7155
-----	-----
IST	623

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

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.

Submitted by : Alex Crosse

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 ${}^8P_8 = 8!$ ways.
- Similarly there are 2 identical rooks, 2 identical knights and 2 identical bishops. Each can be arranged in ${}^2P_2 = 2!$ ways.

Hence, the require answer is
 $= (16!) / (8! * 2! * 2! * 2!)$
 $= 6,48,64,800$

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.

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

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

S A N T A

- C L A U S

X M A 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 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
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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 position when 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		

Montu, Bantu, Chantu and Pintu have pets.

Montu says, "If Bantu 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.

You are locked inside a room with 6 doors - A, B, C, D, E, F. Out of which 3 are Entrances only and 3 are Exits only.

One person came in through door F and two minutes later second person came in through door A. He said, "You will be set free, if you pass through all 6 doors, each door once only and in correct order. Also, door A must be followed by door B or E, door B by C or E, door C by D or F, door D by A or F, door E by B or D and door F by C or D."

After seeing that they both left through door D and unlocked all doors, In which order must you

pass through the doors?

Answer

The correct order is CFDABE

It is given that one person came in through door F and second person came in through door A. It means that door A and door F are Entrances. Also, they both left through door B. Hence, door B is Exit.

As Exit and Entrance should alter each other and we know two Entrances, let's assume that the third Entrance is W. Thus, there are 6 possibilities with "_" indicating Exit.

(1) _W_A_F (2) _W_F_A (3) _F_W_A (4) _F_A_W (5) _A_W_F (6) _A_F_W

As door A must be followed by door B or E and none of them lead to the door F, (1) and (6) are not possible.

Also, door D must be the Exit as only door D leads to the door A and door A is the Entrance.

(2) _W_FDA (3) _F_WDA (4) _FDA_W (5) DA_W_F

Only door D and door C lead to the door F. But door D is used. Hence, door C must be the Exit and precede door F. Also, the third Exit is B and the W must be door E.

(2) BECFDA (3) CFBEDA (4) CFDABE (5) DACEBF

But only door B leads to the door C and both are Exits. Hence, (2) and (5) are not possible. Also, door F does not lead to door B - discard (3). Hence, the possible order is (4) i.e. CFDABE

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.

1. If Clark's apartment is not next to Burzin's apartment, then the landlord is Adam and lives in apartment 1.
2. If Adam's apartment is right of Clark's apartment, then the landlord is Edmund and lives in apartment 4.
3. If Burzin's apartment is not next to Edmund's apartment, then the landlord is Clark and lives in apartment 3.
4. 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.

Tanya wants to go on a date and prefers her date to be tall, dark and handsome.

1. Of the preferred traits - tall, dark and handsome - no two of Adam, Bond, Cruz and Dumbo have the same number.
2. Only Adam or Dumbo is tall and fair.
3. Only Bond or Cruz is short and handsome.
4. Adam and Cruz are either both tall or both short.
5. 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:

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.

Madam, I'm Adam.

Able was I ere I saw Elba.

Egad, a base tone denotes a bad age.

What do these 3 sentences have in common?

Answer

They are Palindromes.

Palindromes are those words/sentences which can be read same both ways - backwards and forwards

Professors Ahmad and Joshi are extremely strange persons.

Prof. Ahmad lies on Mondays, Tuesdays and Wednesdays, but tells true on other days of the week.

Prof. Joshi lies on Thursdays, Fridays and Saturdays, but tells true on other days of the week.

- They made the following statements:
Prof. Ahmad : "Yesterday was one of my lying days."
Prof. Joshi : "Yesterday was one of my lying days too."
What day of the week was it?
- Both Professors looked very alike and one day they said to a visitor to their department :
First Prof: "I'm Ahmed."
Second Prof: "I'm Joshi."
Who was who? What day of the week was it?
- On another occasion, both Professors made the following statements:
First Prof : 1. "I lie on Saturdays."
2. "I lie on Sundays."
Second Prof. : "I will lie tomorrow."
What day of the week was it?

Answer

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Prof. Ahmad	Lies	Lies	Lies	tells truth	tells truth	tells truth	tells truth
Prof. Joshi	tells truth	tells truth	tells truth	Lies	Lies	Lies	tells truth

Teaser 1 :

Assume that Prof. Ahmad is telling truth => today is Thursday

Assume that Prof. Ahmad is lying => today is Monday

Similarly, Assume Prof. Joshi is telling truth => today is Sunday

Assume that Prof. Joshi is lying => today is Thursday.

Hence, today is Thursday, Prof. Ahmad is telling truth and Prof. Joshi is lying.

Teaser 2 :

Assume that First Prof. is telling truth => Thursday, Friday, Saturday or Sunday

Assume that First Prof. is lying => Thursday, Friday or Saturday

Similarly, Assume Second Prof. is telling truth => Monday, Tuesday, Wednesday or Sunday

Assume that Second Prof. is lying => Monday, Tuesday, Wednesday

The only possibility is Sunday and both are telling truth.

Teaser 3 :

A simple one. First Prof. says - "I lie on Sunday" which is false as both the Prof. tell truth on Sunday. It means the first statement made by the First Prof. is also false. It means the First Prof. tells truth on Saturday. Hence First Prof. is Prof. Ahmad and he is lying. It means that today is either Monday, Tuesday or Wednesday.

It is clear that Second Prof. is Prof. Joshi.

Assume that he is telling truth => today is Wednesday

Assume that he is lying => today is Saturday.

Hence, today is Wednesday !!!

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 take 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

Mr. and Mrs. Birla & Mr. and Mrs. Tata competed in a Chess tournament. Of the three games played:

1. In only the first game were the two players married to each other,
2. The men won two games and the women won one game.
3. The Birlas won more games than the Tatas.

4. Anyone who lost a game did not play a subsequent game.

Who did not lose a game?

Answer

Mrs. Tata did not lose a game.

List out all the possibilities and remove the possibilities which contradict the given conditions.

There are only 3 possibilities:

- I. Mr. Birla won one game, Mrs. Birla won one game and Mr. Tata won one game.
- II. Mr. Birla one two games and Mrs. Birla won one game.
- III. Mr. Birla won two games and Mrs. Tata won one game.

If (I) is correct, then Mr. Tata beats Mrs. Tata in the first game. Then Mr. Tata would have lost to either Mr. Birla or Mrs. Birla in the second game. And Mr. and Mrs. Birla would have played the third game which contradicts the statement (1). So (I) is not correct.

Similarly, (II) is not correct.

(III) is correct. Mr. and Mrs. Birla played the first game and Mr. Birla won the game. Mr. Birla won the second game against Mr. Tata and lost the third game against Mrs. Tata.

Thus, only Mrs. Tata did not lose a game.

Eight players participated in the recent BOOM Chess Tournament.

Each player played all of the others exactly once. The winner of a game received 1 point and a loser 0; draws are allowed, giving each player 1/2 point.

Now, it turned out that everyone received a different number of points. Furthermore, Sujay, who came in second, earned as many points as the four bottom finishers put together.

What was the result of the game between Parag, who came in third, and Manav, who came in fifth?

Answer

Parag beat Manav.

Let $X(i)$ be the score of the person who finished in i th place.

It is clear that $X(2)$ cannot be 7. If $X(2) = 6.5$, then this would imply that $X(1) = 7$. But then first person would have beaten everyone. Hence, $X(2)$ cannot be 6.5. Then $X(2) = 6$.

Since it is given that second person earned as many points as the four bottom finishers put together, $X(5) + X(6) + X(7) + X(8) = X(2) = 6$

Now players 5, 6, 7 and 8 played exactly 6 games among themselves. It means that neither player 5, 6, 7 or 8 could have beaten or tied any of players 1, 2, 3 or 4. Otherwise, this sum would be greater than 6.

Thus, it is obvious that Parag beat Manav.

You can construct a number from any date of the year by adding the number of the month to the number of the day. For example: May 15th would become the number 20, since May is the fifth month, and $5 + 15 = 20$. November 14 would become 25, and so on...

How many different numbers can you make, using dates of the Gregorian calendar?

Answer

There are 42 possible numbers, every number between 2 and 43 inclusive.

Following is the list of the numbers that can be constructed each month.

January : 2 to 32

February : 3 to 30 (ignoring leap year)

March : 4 to 34

April : 5 to 34

May : 6 to 36

June : 7 to 36

July : 8 to 38

August : 9 to 39

September : 10 to 39

October : 11 to 41

November : 12 to 41

December : 13 to 43

The most frequent numbers are those from 13 to 30 - they will occur once every month of every year. The most infrequent numbers are 2, 42, and 43. Each occurs only once a year - 2 on January 1st, 42 on December 30th, and 43 on December 31st.

On every Sunday Amar, Akbar and Anthony lunch together at Preetam-Da-Dhaba where they order lassi based on following facts.

1. Unless neither Amar nor Akbar have lassi, Anthony must have it.
2. If Amar does not have lassi, either Akbar or Anthony or both have it.
3. Anthony has lassi only if either Amar or Akbar or both have it.
4. 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 inferred 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.

Thus Amar and Anthony both have lassi whereas Akbar never does

On the road to Tirupati temple, four pilgrims met. Their names, in no particular order, were Ram, Madhav, Mahesh, and Saccha. Here is the conversation they had on the road:

Ram: "I usually only tithe two rupees, but if I beat Saccha to Tirupati temple, I'll gladly tithe double!"

Mahesh: "If I get to Tirupati temple first, I shall show my gratitude by tithing six rupees! If I don't, I shall tithe four rupees anyway."

Saccha: "You wayward fools are tossed by the wind! No matter what happens before here and Tirupati temple, I shall tithe three rupees only. Heaven forgive your false piety!"

Madhav: "Shut up, Saccha. I pledge three rupees if I beat you to Tirupati temple, but nothing if I don't. We'll see who's right!"

Everybody was true to his word, and a total of thirteen rupees was tithed at Tirupati temple. In what order did the pilgrims arrive?

Answer

They arrived at Tirupati temple in this order - Mahesh (6), Ram (4), Saccha (3), Madhav (0).

It is given that Saccha will tithe 3 rupees regardless. Hence among Mahesh, Ram and Madhav total 10 rupees was tithed.

Mahesh and Ram only promise to tithe even numbers of rupees. So if Madhav beat Saccha, his 3 rupees would make the total odd. As the total, 10 rupees, is even, Madhav must not have beaten Saccha. He therefore tithed nothing.

So between Mahesh and Ram, ten rupees was tithed. The only way to make ten rupees, from what we know, is to assume that Mahesh tithed 6 (by arriving in Tirupati temple first), and Ram tithed 4 (by beating Saccha

During the Turkish stampede in Thrace, a small detachment found itself confronted by a wide and deep river. However, they discovered a boat in which two children were rowing about. It was so small that it would only carry the two children, or one grown person.

Can the officer get himself and his 357 soldiers across the river and leave the two children finally in joint possession of their boat? If so, what is the least number of trips that the boat has to make from shore to shore?

Answer

At least 1432 trips required.

The two children row to the opposite shore.
One gets out and the other brings the boat back.
One soldier rows across; soldier gets out, and
Child returns with boat.

Thus, it takes 4 trips to get one soldier across and the boat brought back.

Hence it takes $4 \times 358 = 1432$ trips, to get the officer and his 357 soldiers across the river and the children left in joint possession of their boat

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,

$$\begin{aligned}X + Y + Z &= 100 \\ 5X + 4Y + Z &= 200\end{aligned}$$

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

$$\begin{aligned}\text{if } Y &= X, \\ 200 - 4Z &= 3Z - 200\end{aligned}$$

$$\begin{aligned}
 300 - 4Z &= 3Z - 200 \\
 7Z &= 500 \\
 Z &= 500/7 \text{ i.e. } 71.428
 \end{aligned}$$

$$\begin{aligned}
 \text{if } Y &= X/2, \\
 300 - 4Z &= (3Z - 200)/2 \\
 600 - 8Z &= 3Z - 200 \\
 11Z &= 800 \\
 Z &= 800/11 \text{ i.e. } 72.727
 \end{aligned}$$

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

Substitute digits for the letters to make the following Division true

Y F Y

A Y | N E L L Y

| N L Y

P P L

P N H

N L Y

N L Y

0 0 0

Note that the first and last letters must be non-zero. Also, there must be a non-zero remainder.

between digits and letters. e.g. if you substitute 3 for the letter N, no other letter can be 3 and all other N in the puzzle must be 3.

Submitted by : Calon

Answer

See the pattern of the Y. $AY * Y = NLY$ i.e. Y is multiplied by Y and the last digit of the answer is also Y. Thus. the value of Y would be 5 or 6.

-----	-----
0 0 0	0 0 0

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

$$2X - Y \quad 4X - 3Y \quad 8X - 7Y$$

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 $N = 1, 2, 3, 4, \dots$

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 ?

Answer

	C1	C2	C3	C4	C5	.....	C48	C49	C50	
R1	1	2	3	4	5	.....	48	49	50	50
R2	51	52	53	54	55	.....	98	99	100	100
R3	101	102	103	104	105	.....	148	149	150	150
....
....
R9	401	402	403	404	405	.....	448	449	450	450
R10	451	452	453	454	455	.....	498	499	500	500
	1	2	3	4	5	.....	48	49	50	50

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.

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?

Answer

The minimum number is 5 and they should weigh 1, 3, 9, 27 and 81 kgs.

The Bulls, Pacers, Lakers and Jazz ran for a contest.
Anup, Sujit, John made the following statements regarding results.

- Anup said either Bulls or Jazz will definitely win
- Sujit said he is confident that Bulls will not win
- John said he is confident that neither Jazz nor Lakers will win

When the result came, it was found that only one of the above three had made a correct statement. Who has made the correct statement and who has won the contest?

Answer

Sujith has made the correct statement and **Lakers** has won the contest.

Let's solve it. Create the table with the statements made.

	Bulls	Pacers	Lakers	Jazz
Anup	YES			YES
Sujit	NO			
John			NO	NO

Now let's analyse the situation by assuming that Anup has made the correct statement. It means that either Bulls or Jazz has won the contest.

- If bulls has won, then John is also correct
- If Jazz has won, then Sujit is also correct.

In either case Anup has made the wrong statement.

Now assume that Sujit has made the correct statement. It means that either or Pacers or Lakers or Jazz won the contest.

- If Pacers has won, then John is also correct.
- If Jazz has won, then Anup is also correct.
- If Lakers has won, then Anup and John both are wrong.

So is the answer - Sujit has made the correct statement and Lakers won the contest.

Similarly, analyse for john which means either Bulls or Pacers has won the contest

Given a rectangular cake with a rectangular piece removed (any Size or Orientation).

How would you cut the remainder of the cake into two equal halves with one straight cut of a knife?

Answer

If you cut a rectangular thing along the center (horizontally, vertically or at any angle), you will get two halves.

Find the centers of both - the original cake and the removed piece. Now, cut the remainder along the line connecting these two centers.

This is true because this line cut both - the original cake and the removed piece - in half, thus the remainder into two halves.

The population of an island consists of two and only two types of people : the knights, who invariably tell the truth and the knaves who always lie.

One day a stanger in the island, met four inhabitants. He asked the first one whether the second was a Knight or a Knave. The reply was "Knave". Similarly, the second inhabitant said that the third was a "Knave", and the third said the same about the fourth.

Now he asked the fourth inhabitant that what would the first have said about the third. The reply once again was "Knave".

Who is the fourth inhabitant, Knight or Knave?

Answer

The fourth inhabitant is a Knave.

Take two cases.

Assume that the first inhabitant was a Knight. It means that second inhabitant was a Knave as the first was telling the truth. Similarly, the third inhabitant was a Knight as the second was lying. Inturn, the forth inhabitant was a Knave as the third was telling the truth.

Now the first and the third both are Knight. So the first would have said "Knight" for the third person. But the forth would have said "Knave" and he did. Hence, the fourth person was Knave.

Tryout second case yourself i.e. assume that the first inhabitant was a Knave

Angela had a craving for mixed nuts, but all she had in the cupboard was a bag of peanuts and a bag of almonds (Guess she needs to do some shopping). Being the smart young lady that she is, she poured all the almonds into an empty jar and then poured all of the peanuts on top, which did

not quite fill the jar.

Angela thought to herself, "I want mixed nuts." She put the lid on and begin vigorously shaking the jar up and down in order to get mixed nuts while watching education television.

After a few minutes of continuous shaking she suddenly realized that the peanuts and almonds were not mixed at all. In fact, the almonds were on top! Angela was amazed to see that the almonds rose to the top, even though she knew that the almonds were bigger and heavier than the peanuts.

She got to thinking that this is the same thing that happens in boxes of cereal and bags of potato chips. Why, she wonders, does the heavier objects shake to the top?

Can anyone out there help Angela figure this out.

Submitted by : Russ Schenck

Answer

The large objects (bigger and heavier) rose to the top of the jar because the smaller objects slide through the small gaps between the large objects to the bottom. Also, the smaller objects fit closer together so that they do not allow the larger objects to slide through.

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

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.

1. Harbhajan
2. Ganguly
3. Dravid
4. Badani, Agarkar
5. Sachin
6. Laxman

Also, as the lowest score was 10 runs. Laxman must have scored 10, Sachin 20, Badani & Agarkar 30 and so on.

1. Harbhajan - 60 runs
2. Ganguly - 50 runs
3. Dravid - 40 runs
4. Badani, Agarkar - 30 runs each
5. Sachin - 20 runs
6. Laxman - 10 runs

Spike is taking a series of exams. It turns out that he'll have to score a 97 on the last one in order to average 90 for the entire series. But even if he scores as low as a 73, he'll still average an 87.

How many exams are there in the series?

Answer

There are total 8 exams.

Let S be the sum of all of his exam scores before the final, and let there be a total of N exams.

Then we have,

$$(S + 97) / N = (S + 73) / N + 3$$

$$S + 97 = S + 73 + 3N$$

$$3N = 24$$

$$N = 8$$

Thus, there are total 8 exams.

In general, if a difference of X points on the final exam corresponds to a difference of Y points in the overall average, then there are X/Y exams in total.

Which of the following numbers is the odd one out and why?

1, 2, 3, 5, 9, 13, 21

Note that 2 is not the odd one.

Submitted by : Brett Hurrell

Answer

The odd number is 9.

It is a Fibonacci Series - a series in which next number is summation of previous 2 numbers.

The first two numbers are 1 and 2.

Third number is $= 1 + 2 = 3$

Fourth number is $3 + 5 = 8$

Fifth number is $5 + 8 = 13$

Sixth number is $8 + 13 = 21$

Hence 9 is the odd number It should 8

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

Mrs. F has invited several wives of delegates to the United Nations for an informal luncheon. She plans to seat her 9 guests in a 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.

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 :

$$\begin{aligned} &= 6 \text{ (case AA)} + 24 \text{ (case ABA)} + 24 \text{ (case ABB)} + 24 \text{ (case BAA)} + 24 \text{ (case BAB)} + \\ &24 \text{ (case BB)} \\ &= 126 \text{ seating arrangements} \end{aligned}$$

Thus, 126 distinct seating arrangements are possible

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?

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.

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

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

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?

Submitted by : Tim Sanders

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

$$= 2^{(N-1)} + 2^{(N-2)} + 2^{(N-3)} + \dots + 2^2 + 2^1 + 2^0$$
$$= 2^N - 1$$

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 $2^N - 1$

Consider the following banking transactions. Deposit \$50.00 and withdraw it as follows:

withdraw \$20.00 leaving \$30.00

withdraw \$15.00 leaving \$15.00

withdraw \$ 9.00 leaving \$ 6.00

withdraw \$ 6.00 leaving \$ 0.00

\$50.00 \$51.00

Where did \$1.00 come from?

Submitted by : Susie

Answer

The calculation done is wrong. The sum of "leaving" amounts after every withdrawal is not the total amount withdrawn. **The total amount withdrawn is the sum of all withdraws, not sum of all balance amounts**

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.

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

10

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

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.

Find the smallest number N which has the following properties:

1. its decimal representation has 6 as the last digit.
2. If the last digit 6 is erased and placed in front of the remaining digits, the resulting number is four times as great as the original number N.

Answer

The smallest such number is 153846.

Assume that the number N is

$$N = B_n B_{n-1} B_{n-2} \dots B_3 B_2 6$$

as its given that 6 is the last digit.

Now after erasing 6 and putting it in front of the remaining digits, we get

$$N_{\text{new}} = 6 B_n B_{n-1} B_{n-2} \dots B_3 B_2$$

Also given that N_{new} is 4 times the N. Also note that the last digit N_{new} is second last digit of N and so on. The required result is

$$B_n B_{n-1} B_{n-2} \dots B_3 B_2 6$$

X 4

$6B_n B_{n-1} B_{n-2} \dots B_3 B_2$

So start multiplying and put n^{th} digit of N_{new} to $(n + 1)^{\text{th}}$ digit of N and you will get result as

1 5 3 8 4 6

X 4

6 1 5 3 8 4

Hence, **the number is 153846**

If two numbers are respectively 20% and 50% of a third number, what % is the first number of the second number?

Answer

The first number is 40% of the second number.

Let's assume that the third number is N . Then,

First number = $N * (20/100) = N/5$

Second number = $N * (50/100) = N/2$

Hence, the required answer is

= $[(N/5) / (N/2)] * 100$

= 40 %

Thus, the first number is 40% of the second number.

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

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?

Answer

If you select 4 Jelly beans you are guaranteed that you will have 2 that are the same color

Find the next number in the series 11 12 20 23 33 46

Answer

All the numbers given are the fibonacci numbers in increasing bases starting 2 !!!

Therefore,

11 = 3 base 2

12 = 5 base 3

20 = 8 base 4

23 = 13 base 5 etc ...

Answer = 67 which is 55 base 8

Answer = 67 which is 55 base 8

(Fibonacci series : 2, 3, 5, 8, 13, 21, 34, 55, 89..... where next number is sum of the previous to numbers

What is it that casts a shadow at midnight but not at noon,
What moves when all is still but not a moment too soon,
What at twilight is three feet tall,
But what at midnight is largest of all?

Can you solve this riddle?

Submitted by : Mike Chaney

Answer

The Moon

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.

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	<i>Carl</i>
2	Alan	<i>Denzil</i>	Barry	Carl
3	Barry	Alan	<i>Carl</i>	Denzil
4	Alan	<i>Barry</i>	Denzil	Carl
5	Barry	<i>Carl</i>	Denzil	Alan
6	Carl	Barry	<i>Denzil</i>	Alan
7	<i>Denzil</i>	Barry	Alan	Carl
8	<i>Carl</i>	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 Hon

A family photo contained:

one grandfather, one grandmother;
two fathers, two mothers;
six children, four grandchildren;
two brothers, two sisters;
three sons, three daughters;
one father-in-law, one mother-in-law, one daughter-in-law, one son-in-law

30 people you may think, but no, what is the least number of people here?

Answer

There are total 8 people.

Four children - 2 boys and 2 girls, their mother and father, and one set of grandparents - EITHER mother's mother and father's father OR mother's father and father's mother.

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 row 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 solve 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,
 $R + B + I + I + R = 29$
 $B + 2R + 2I = 29$
 $B + 2(B - 1) + 2I = 29$
 $3B + 2I = 31$

$$\begin{aligned}
 3B + 2I &= 31 \\
 3(I + 2) + 2I &= 31 \\
 5I &= 25 \\
 I &= 5
 \end{aligned}$$

Hence, $B=7$ and $R=6$

$$\begin{aligned}
 &\text{From Row 2,} \\
 B + B + R + B + A &= 31 \\
 3B + R + A &= 31 \\
 3(7) + 6 + A &= 31 \\
 A &= 4
 \end{aligned}$$

$$\begin{aligned}
 &\text{From Row 1,} \\
 B + R + A + I + N &= 31 \\
 7 + 6 + 4 + 5 + N &= 31 \\
 N &= 9
 \end{aligned}$$

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

Consider the sum: $ABC + DEF + GHI = JJJ$

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. ($JJJ = ABC + DEF + GHI = 14? + 25? + 36? = 7??$)

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 $0 + 1 + \dots + 9$ has a remainder of 0 after dividing by 9 and JJJ 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 $0 + 1 + \dots + 9$. Hence, it follows that J must be 9.

Decipher the following:

YYRUYYUBICURYY4ME

Submitted by : Angelina Alarid

Answer

Too nice for you

Too wise are you,
Too wise you be,
I see you are
Too wise for me.

Decipher this sentence (Underscores represent spaces):

IHT_OU_D_AEPPASH

Submitted by : Donald Booth

Answer

It decodes to **"I HATE POPUP ADS"**

The last letter H is the key to solve the message. H is the 8th letter of the alphabet, making 8 the key.

Take the first letter and the 8th letter after that. Take the second letter and the 8th letter after that. Take the third letter and the 8th letter after that and so on. Discard the last letter H which we are using as a key.

Starting letter	8th letter after starting letter	Decoded sentence
I	_	I_
H	A	I_HA
T	E	I_HATE_
_	P	I_HATE_P
O	P	I_HATE_POP
U	P	I_HATE_POPUP
_	A	I_HATE_POPUP_A
D	S	I_HATE_POPUP_ADS

Hence, the decoded sentence is "I HATE POPUP ADS"

What do all of the following capital letters have in common?

A, H, I, M, O, T, U, V, W, X, Y

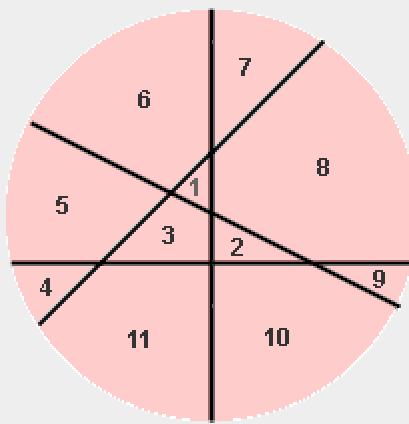
Answer

All capital letters in the brain-teaser are **Vertically Symmetrical**. Hence, they all read the same when seen in mirror.

How many parts can a circle be divided into drawing four straight lines? Give the maximum possible answer.

Submitted by : Kimi

Answer



The circle can be divided into 11 parts by drawing 4 straight line.

The trick is whenever you draw a line, it should cut all previously drawn lines and no more than 2 lines should pass through any intersection point.

Using above, whenever you draw line number N, the maximum possible parts are increased by N. Initially, without any lines there is one part. Hence whenever you draw N lines, the maximum possible parts are :

$$= 1 + (1 + 2 + 3 + 4 + 5 + \dots + N)$$

$$= 1 + (N * (N + 1)) / 2$$

There are 10 cups placed on a table such that 3 are face up and 7 are bottom up. A move is defined as inverting a pair (compulsorily) of cups.

What is the minimum number of moves required to make all the cups face the same way?

Answer

It is not at all possible. There is no way that one can do that with given Move.

A move is defined as inverting a pair of cups, compulsorily. Also, there are odd number of cups face up (3) and odd number of cups bottom up (7). Now whenever you make a move you have to invert 2 cups compulsorily. Hence, always odd number of cups will be face up and bottom up, whatever move you make

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

1. is a multiple of 5, it is a number between 1 and 19
2. is not a multiple of 8, it is a number between 20 and 29
3. 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, 20, 25, 30, 35, 40)

Second condition says that if not a multiple of 8, then the number is between 20 and 29. Hence, the possible numbers are (20, 21, 22, 23, 24, 25, 26, 27, 28, 29)

Third condition says that if not a multiple of 10, then the number is between 30 and 39. Hence, the possible numbers are (30, 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.

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 envelopes 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 contains one \$2 bill
Envelope No 8 contains one \$100 bill, one \$20 bill, one \$5 bill, one \$2 bill and one \$1 bill
Envelope No 14 contains 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

Find the next in the set:
AZFR, LARU, AMAS, SBNS, KICI, ????

Submitted by : Milind Gadagkar

Answer

Sixth letter of each word : A A E A

Hence, the answer is AAEA.

There are N players in the Chess Tournament. If a player loses a game, he is immediately eliminated from the tournament.

How many games will be played to determine the winner?

Answer

$N-1$ games will be played to determine the winner.

It is clear that there are total of N players and there will be only one winner. If there will be only one winner, then there should be $(N-1)$ losers i.e. $(N-1)$ players should be eliminated from the Chess Tournament. Hence, total of $(N-1)$ games will be played.

Let's take an example. Assume that there are 24 players.

In First round, there will be 12 games in which 12 players will be eliminated. In Second round there will be 6 games. In Third round there will be 3 games. Forth and Fifth round will have one game each to determine the winner. Hence, total of $(12+6+3+1+1)$ 23 games will be played.

You can test it out by taking any value of N . The answer will be $(N-1)$ for all values of N .

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 Stmts
	A	B	A	B	A	B	A	B	
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 the guilty.

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

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

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.**

Similarly, 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. Similarly, 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.

For many years a BIG company was looking for the universal solvent - a solvent that will dissolve anything.

One day a man walked in a bottle in his hand. The man said "I've come up with the UNIVERSAL solvent!! And if you're lucky, i will sell it to you for a mere \$100,000!"

The president looked seriously at the man and screamed, "Get out of here you stupid creep! You're a dumb liar and a fake!!!"

And with that the president of this huge company picked up the guy and threw him out by his feet.

How did the president know the man was a fake before he even tested the solvent?

Submitted by : Kimi

Answer

The UNIVERSAL solvent is a solvent that will dissolve anything. The man came with Universal solvent in a bottle. Whereas according to definition of Universal Solvent even bottle should dissolve in it; but it was not. So the President came to know that he was a FAKE.

Also, if there was a Universal Solvent then it would dissolve anything and everything. Isn't that interesting?

A sheet of paper has statements numbered from 1 to 100. Statement N says "Exactly N of the statements on this sheet are false."

How many statements are true?

Answer**Only One statement is true - Statement 99**

If they are all false, statement 100 would be true i.e. "Exactly 100 of the statements on this sheet are false", which is contradictory.

If total of 99 statements are false, statement 99 would be true i.e. "Exactly 99 of the statements on this sheet are false". That's the answer - total 99 statements are false, and statement 99 is true.

Try out for all remaining statements, they all will contradict itself.

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.

Submitted by : Joe Lambe

Answer

Let's number the dots to simplify the explanation.

1 2 3 Y

4 5 6

7 8 9

X

Where X, Y are just two imaginary points.

1. Draw the first line starting from point 1 and passing straight down through points 4, 7 and X.
2. Draw the second line starting from X and passing through 8, 6 and Y.
3. Draw the third line starting from Y and passing through 3, 2 and 1.
4. And now draw the forth and the final line starting from 1 and passing through 5 and 9

Two women, X and Y, were selling Oranges in the market. X were selling 3 oranges for a Rupee and Y were selling 2 oranges for a Rupee.

One day each of them had 30 oranges unsold. They put together the two lots of oranges and decided to sell 5 oranges for Rs. 2. According to their calculation, 3 oranges for Rs. 1 and 2 oranges for Rs. 1 was exactly the same as 5 oranges for Rs. 2

Now, they were expecting to get Rs. 25 for the oranges, as they would have got, if sold separately. But to their surprise they got only Rs. 24 for the entire lot of the 60 oranges.

Where did the one rupee go?

Answer

Woman X was selling 3 oranges for a Rupee. Hence, the average price of one orange is $(1/3)$ = Rs. 0.3333

Woman Y was selling 2 oranges for a Rupee. Hence, the average price of one orange is $(1/2)$ = Rs. 0.5

Now they put together 60 oranges. Hence, the average price of one orange is $(0.3333+0.5)/2$ = Rs. 0.4167

But, they were selling 5 oranges for Rs. 2. Hence, the average price of one orange is $2/5$ = Rs. 0.4

The difference is $(0.4167 - 0.4) = 0.0167$

There are 60 oranges. Hence $(0.0167 * 60) = 1$

So here is that one rupee. Thus, one rupee didn't go anywhere, they did their math wrong

boy goes into a shop to buy some sweets. He uses a £1 coin and buys 40p worth of sweets. The shop assistant gives him two coins for his change.

One of them was not a 50p so how could the boy have gotten his exact change?

Submitted by : Lynsey

Answer

One of them was 10p and the other one was 50p.

The boy got two coins, 50p and 10p. One of them was not a 50p. But the other one was

What is greater then GOD, worse then devil, dead men eat it and live men will die if they eat it?

Submitted by : ken

Answer

The answer is "NOTHING"

NOTHING is greater then god. NOTHING is worse then the devil, dead men eat NOTHING and if men eat NOTHING, they die.

Similar riddle:

What lasts forever, but if you eat it you will die?

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?

Submitted by : Calon

Answer

The fish is 128 inches long.

It is obvious that the length of the fish is the summation of lengths of the head, the body and the tail. Hence,

$$\text{Fish (F)} = \text{Head (H)} + \text{Body (B)} + \text{Tail (T)}$$

But it is given that the length 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 length of its body i.e.

$T = H + B/4$. Thus, the equation is

$$F = H + B + T$$

$$F = 4 + (3/4)*F + H + B/4$$

$$F = 4 + (3/4)*F + 4 + (1/4)*(3/4)*F$$

$$F = 8 + (15/16)*F$$

$$(1/16)*F = 8$$

$$F = 128 \text{ inches}$$

Thus, the fish is 128 inches long.

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

W O R L D

+ T R A D E

C E N T E R

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 W, no other letter can be 3 and all other W in the puzzle must be 3.

Answer

A tough one.

It is obvious that $C=1$. Also, the maximum possible value of E is 7. Now, start putting possible

CENTER 129726

A CAR has a value of 1 and a TRACTOR has a value of 2.

What is the value of an AIRPLANE? Note that AIRPLANE costs more than CAR or TRACTOR.

Submitted by : Lynda

Answer

AIRPLANE has a value of 4.

The value of each vehicle equals the total number of vowels in the word.

CAR has 1 vowel i.e. A

TRACTOR has 2 vowels i.e. A O

AIRPLANE has 4 vowels i.e. A I A E

There is one more possible answer: The value of each vehicle equals the total number of DISTINCT vowels in the word. So the value of AIRPLANE will be 3.

Can you decode the following Cryptogram?

YZUO RLDUO OZKXR

YVWQG CVW UOODJFO

KN CVW SXDY KO YUT

KJFVTTKAQD OV NUKQ?

Answer

It's a question, so the first word has to be an interrogative i.e. WHEN or WHAT. Also, the last word in the third line has to be WAS which means that first word has to be WHAT.

Now, making substitutions as IT (KO), TO (OV), YOU (CVW), WOULD (YVWQG), ATTEMPT (UOODJFO), IMPOSSIBLE (KJFVTTKAQD) in that order, which are quite obvious. The rest of the cryptogram can be solved with little bit of brain-scratching.

YZUO RLDUO OZKXR

WHAT GREAT THING

YVWQG CVW UOODJFO

WOULD YOU ATTEMPT

KN CVW SXDY KO YUT

IF YOU KNEW IT WAS

KJFVTTKAQD OV NUKQ?

IMPOSSIBLE TO FAIL?

Which is heavier a pound of bricks or a pound of feathers?

Submitted by : Priscilla M

Answer

Both of them weigh one pound. So neither is heavier than the other, both are same.

Note

The pound is the name for at least three different units of mass: the pound (avoirdupois), the

The pound is the name for at least three different units of mass: the pound (avoirdupois), the troy pound, and the obsolete imperial pound.

Gold is measured in "troy" pounds which is lighter than "Avoirdupois" pounds which is most commonly used. "Imperial" units are still predominantly used in the United States.

So if a pound of gold is measured in troy pounds and feathers in Avoirdupois pounds, then gold is lighter

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

4 hrs. 54 min. 32.74 seconds

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

$$12X + 120 + (30 - X) = 180$$

$$11X = 30$$

$$\text{Hence } X = 30/11 \text{ degrees}$$

(hour hand is X degree away from 5 O'clock)

Now each degree the hour hand moves is 2 minutes.

Therefore minutes are

$$= 2 * 30/11$$

$$= 60/11$$

$$= 5.45 \text{ (means 5 minutes 27.16 seconds)}$$

Therefore the exact time at which the hands are opposite to each other is

$$= 4 \text{ hrs. } 54 \text{ min. } 32.74 \text{ seconds}$$

Ali Baba had four sons, to whom he bequeathed his 39 camels, with the proviso that the legacy be divided in the following manner:

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 $\frac{1}{2}$ of 40 = 20 which is 0.5 more

The second son got $\frac{1}{4}$ of 40 = 10 which is 0.25 more

The third son got $\frac{1}{8}$ of 40 = 5 which is 0.125 more

The youngest son got $\frac{1}{10}$ of 40 = 4 which is 0.1 more

And the stranger got $\frac{1}{40}$ 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

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

This is an unusual paragraph. I'm curious how quickly you can find out what is so unusual about it. It looks so plain you would think nothing was wrong with it. In fact, nothing is wrong with it! It is unusual though. Study it, and think about it, but you still may not find anything odd. But if you work at it a bit, you might find out.

Submitted by : Helen Normandin

Answer

There is no letter "E" in the paragraph.

Letter "E" is the most commonly used letter in English language. Hence, its really unusual that there is not a single "E" in that paragraph.

You live in a hilly section of the suburbs and want to buy a new set of table and chairs for the garden. Would you be better off buying items of furniture that have four legs or three legs? And why?

Answer

A table and chairs with three legs.

Remember you live in a hilly section and also you require furniture for the garden. A table/chair with three legs is more stable, as three points always lie in a plane

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?

Submitted by : Alex Crosse

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
_____X X
_____8 0 0 0 8
_____0 0 0 0
_____X 0 0 0 X
_____8 8
_____8
```

For triangle of any number of rows, the optimal number of moves can be achieved by moving

For triangle 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 $N = 4, 6, 8, 10, \dots$

For a triangle with even number of rows, the total moves require are :
 $((N^2-1)/4) - (N-4)$ Where $N = 5, 7, 9, 11, \dots$

Thanks to Alex Crosse for submitting above formulas.

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

PRIMAL SERIES

Decide what the next 5 figures in this series should be:

0110101000101000101000

Answer

10000

The title holds a hint, although this is still a tough puzzle. The series begins with the number 1, & continues through 22, giving a 1 for each prime number, & a 0 for each number that is not prime.

Of the last 5 numbers (23-27), only 23 is prime.

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,
 $g + 24r = 70 * 24 * y$ ----- A
 $g + 60r = 30 * 60 * y$ ----- B
 $g + 96r = n * 96 * y$ ----- 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.

As I was traveling to St.Petersberg I saw a man with 7 wives, with 7 kittens, in 7 sacks, and with 7 drinks on a bike.

How many people/things are going to St. Petersburg?

Submitted by : Mark b

Answer

One man is traveling to St. Petersburg.

It said as I saw a man with 7 wives, with 7 kittens, in 7 sacks, and with 7 drinks, on a bike. He only saw them, so they didnot count. Hence, he is the only person that is actually going.

Given the following facts:

1. Dinesh is younger than Farukh and older than Gurmit.
2. Jatin is younger than Chandu and older than Eshrat.
3. Amit is younger than Irfan and older than Chandu.
4. Farukh is younger than Bhavin and older than Hemant.
5. Irfan is younger than Gurmit and older than Jatin.

6. 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

Find next two numbers in the series :

100, 365, 24, 60, ?, ?

Answer

The next two numbers are 60 and 1000.

The pattern is breaking down the time from Century to milliseconds.

There are 100 years in a century.

There are 365 days in a year.

There are 24 hours in a day.

There are 60 minutes in an hour.

There are 60 seconds in a minute.

There are 1000 milliseconds in a second.

Hence, the sequence is : 100, 365, 24, 60, 60, 1000

The letters B, C, D, E, F, G, H and M are arranged in that order according to some ascending

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.

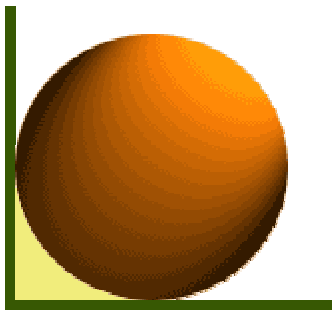
Using trial and error, it can be found that there must be 2 letters between them. Also, it is possible only in option [2] above.

[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

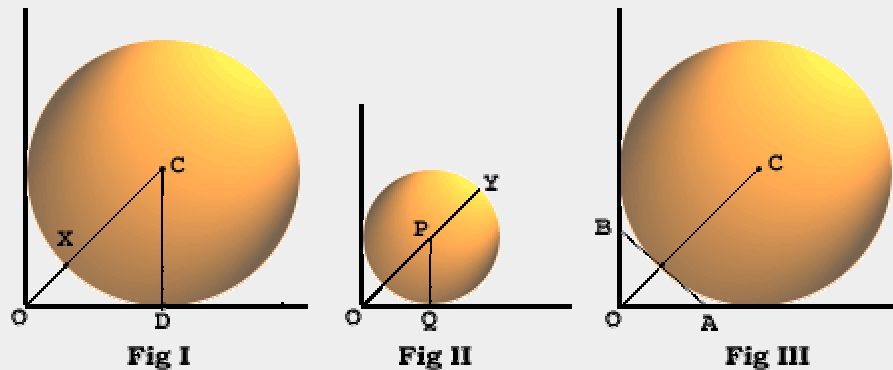


Brain Teaser No : 00128

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".

Answer



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)

$$OC^2 = OD^2 + CD^2$$

$$OC^2 = 20^2 + 20^2$$

$$OC = 28.28427 \text{ cms}$$

Also, X is the closest point to origin O on the sphere.

$$CX = 20 \text{ cms (radius)}$$

$$OX = OC - CX$$

$$OX = 28.28427 - 20$$

$$OX = 8.28427 \text{ cms}$$

From Figure II, (7 cms diameter sphere)

$$OP^2 = OQ^2 + PQ^2$$

$$OP^2 = (3.5)^2 + (3.5)^2$$

$$OP = 4.94974 \text{ cms}$$

Also, Y is the farthest point to origin O on the sphere.

$$PY = 3.5 \text{ cms (radius)}$$

$$OY = OP + PY$$

$$OY = 4.94974 + 3.5$$

$$OY = 8.44974 \text{ cms}$$

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 tangent 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

$$OA = OB = 11.71572 \text{ cms}$$

$$AB = 16.56854 \text{ cms}$$

Now, the diameter of the inscribed circle of right angle triangle is given by $d = a + b - c$ where $a \leq b < c$

The maximum possible diameter of the circle which can pass through the space between the big sphere, the wall and the floor is

$$= OA + OB - AB$$

$$= 11.71572 + 11.71572 - 16.56854$$

$$= 6.86291 \text{ cms}$$

Hence, the sphere with 7 cms diameter can not pass through the space between the big sphere, the wall and the floor.

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

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?

Answer

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.

A sign on the door of the Barber of Seville says "I shave those and only those who don't shave themselves". Does the barber also shave himself?

Please note that the Barber is a man.

Submitted by : Nathalie Drouin

Answer

It's a paradox created by the philosopher and mathematician Lord Bertrand Russell. If the barber shaves himself, he contradicts his sign. If he doesn't shave himself, he also contradicts his sign

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.

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

$$2A/3 = A/15 + B/5 + 4G/5$$

$$2A/3 = A/15 + A/9 + 4G/5 \text{ (as } B=5A/9\text{)}$$

$$30A = 3A + 5A + 36G$$

$$22A = 36G$$

$$11A = 18G$$

Arjan's sheep = Lakha's sheep

$$2A/3 = A/60 + B/20 + G/5 + L$$

$$2A/3 = A/60 + A/36 + 11A/90 + L \text{ (as } B=5A/9 \text{ and } G=11A/18\text{)}$$

$$2A/3 = A/6 + L$$

$$A/2 = L$$

$$A = 2L$$

Also, it is given that Guran had ten more sheep than Lakha.

$$G = L + 10$$

$$11A/18 = A/2 + 10$$

$$A/9 = 10$$

$$A = 90 \text{ sheep}$$

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.

The product of the digits of a three-digit number is 105.

What is the greatest possible value of the number?

Submitted by : Lisa

Answer

A simple one !!!

The prime factors of 105 are 3, 5 and 7 i.e. $(105 = 3 \times 5 \times 7)$

Thus, the greatest possible 3-digit number is 753.

B is the brother of J and R is the daughter of J. Z is the sister of B and P is the brother of R. S is the father of Z.

Who is the uncle of P?

Answer

B is the uncle of P.

S (father of Z, B & J)

|

|

(brother of J & Z) B - J - Z (sister of B & J)

|

|

(daughter of J) R - P (son of J &

& sister of P brother of R)

From the above chart, it is clear that B is the uncle, Z is the aunt and S is the grandfather of R & P

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

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?

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.

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 constitutes a different word in the language, what is the maximum number of six-letter words that the language can employ?

Submitted by : Shelley

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 $6!$ ways i.e. 720 ways.

In other words, 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 $6 \times 5 \times 4 \times 3 \times 2 \times 1 = 720$

There is a cabin on the top of a mountain. There are many people dead inside. They are the only once-living creatures in the cabin. All of the windows and doors are sealed, and there is no human life around for hundreds of miles. There is no way to reach the cabin by car or foot, there are dense woods and dangerous wild animals in the area.

How did they get there?

Submitted by : Laura

Answer

The cabin is the cabin of an aeroplane.

The aeroplane crashed on the mountain, and all the people inside died. There is no other possibility as teaser says "all of the windows and doors are sealed, there is no human life around for hundreds of miles, there is no way to reach the cabin by car or foot, there are dense woods and dangerous wild animals in the area."

It is also possible that someone dropped them there from aeroplane or helicopter and due to some reasons they died inside the cabin. But the first answer looks much more satisfactory.

Two fathers and two sons go out hunting one day in a huge forest. At the end of the day, only three people emerge from the forest.

What happened? Note that not a single person is killed/death.

Submitted by : Vertu

Answer

There are only three person entered the forest. Son, Father and Grandfather.

- There are two fathers - the father and the grandfather. As grandfather is father's father.
- There are also two sons - the son and the father. As the father is the grandfathers son

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.

Answer

Amt	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Coin																					
.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

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

Pappu, Nandu, Mamu and Chhoti participated in a POOL competition.

FACTS

1. There are total of 15 balls.
2. For each ball potted, the player will receive one point.
3. They all will play each other once.
4. A game will end when all the balls are potted.
5. The winner will be the player who scored the most points.

OUTCOMES

1. Chhoti finished with 18 points.
2. Pappu finished with odd number of points.
3. Mamu beat Chhoti by 5 points in the match between them.
4. There was one point difference in match between Nandu and Pappu.
5. Pappu scored twice as many points as Mamu in their game.
6. Chhoti scored one point less against Pappu than he did against Mamu.
7. Mamu scored 7 points against Nandu.

Who won the competition? How many points did each player score?

Answer

Let's put all the given information in a tabular format.

Players	P-N	P-M	P-C	N-M	N-C	M-C	Total
Pappu	7 or 8	10	11	---	---	---	Odd points
Nandu	8 or 7	---	---	8		---	
Mamu	---	5	---	7	---	10	
Chhoti	---	---	4	---		5	18

- As Pappu finished with odd number of points, he must have scored 8 points in the match against Nandu.
- As Chhoti finished with 18 points, he must have scored 9 points in the match against Nandu.

Players	P-N	P-M	P-C	N-M	N-C	M-C	Total
Pappu	8	10	11	---	---	---	29
Nandu	7	---	---	8	6	---	21
Mamu	---	5	---	7	---	10	22
Chhoti	---	---	4	---	9	5	18

Hence, the winner is Pappu with 29 points.

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 correctly! 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?

Submitted by : Milind Gadagkar

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

While sitting in a club where all single men tell the truth and all married men lie, a woman is approached by three men.

She asks the first guy if he is married, but the music is so loud that she can not hear his answer.

So she turns to the second guy, who tells her, "The first guy said, 'I am married', but he is really single."

Then she turns to the third guy, who says, "The second guy is single."

Can you determine the marital status of each of the three men?

Submitted by : Marie

Answer

All three are married.

A single man would always say that he is single. And a married man would also always say that he is single. It means that no man in the club would say that he is married. Thus, the second man is lying, so the second man is married.

Since the second man (always lies) says the first man is single, the first man is married.

Similarly, the third man incorrectly says that the second man is single. Hence, the third man is lying and he is married.

Thus, all three are lying and hence, married

Below is a Quiz written by Einstein in the 1st century.

He said 98% of the people in the world cannot solve the quiz. Are you among the other 2%?

FACTS

1. There are 5 houses in 5 different colors.
2. In each house lives a person with a different nationality.
3. These 5 owners drink a certain beverage, smoke a certain brand of cigar and keep a certain pet.
4. No owners have the same pet, smoke the same brand of cigar or drink the same drink.

HINTS

1. The Brit lives in a red house.
2. The Swede keeps dogs as pets.
3. The Dane drinks tea.
4. The green house is on the immediate left of the white house.
5. The green house owner drinks coffee.
6. The person who smokes Pall Mall rears birds.
7. The owner of the yellow house smokes Dunhill.
8. The man living in the house right in the center drinks milk.
9. The Norwegian lives in the first house.
10. The man who smokes blend lives next to the one who keeps cats.
11. The man who keeps horses lives next to the man who smokes Dunhill.
12. The owner who smokes Blue Master drinks beer.
13. The German smokes Prince.
14. The Norwegian lives next to the Blue House.
15. The man who smokes blend has a neighbor who drinks water.

THE QUESTION IS....WHO KEEPS FISH?

There is no trick to this - it needs deductive reasoning and definitely a pen and paper.

Answer

Nationality Beverage Cigar Pet House Color

Norwegian Water Dunhill Cat Yellow

Dane Tea Blend Horses Blue

Brit Milk Pall Mall Bird Red

German Coffee Prince Fish Green

Swede Beer Blue Master Dog White

Therefore the answer is the German.

Nationality Beverage Cigar Pet House Color

Norwegian Coffee Blend Fish Green

German Water Prince Cats Blue

Swede Milk Dunhill Dogs Yellow

Brit Beer Blue Master Horses Red

Dane Tea Pall Mall Birds White

Thus, either German or Norwegian keeps the Fish, if the green house is not necessarily on the immediate left of the white house.

Thanks to Katie Crowe and friends for the second answer !!!

You've been placed on a course of expensive medication in which you are to take one tablet of medicine A and one tablet of medicine B daily. You must be careful that you take just one of each because taking more of either can have serious side effects. Taking an A without taking a B, or vice versa, can also be very serious, because they must be taken together in order to be effective. In summary, you must take exactly one of the A pills and one of the B pills at one time.

You open up the A bottle, and you tap one A pill into your hand. You put that bottle aside and you open the B bottle. You do the same, but by mistake, two Bs fall into your hand with the A pill.

Now, you weren't watching your hand as the pills fell into it; so you can't tell the A pill apart from the two B pills. The pills look identical and they are not marked differently in any way.

You cannot tell which pill is which, and they are very costly, so you cannot afford to throw them away and start over again.

How do you get your daily dose of exactly one A and exactly one B without wasting any of the pills?

Answer

Now you have two stacks, each one containing two halves of pill A, and two halves of pill B. Take one stack of pills today, and save the second stack for tomorrow.

bet you Rs. 100 that if you give me Rs. 200, I will give you Rs. 300 in return.

Would you bet with me? Why?

Answer

No, you should not bet.

Let's say you bet and you gave Rs. 200 to me. Now there are 2 possibilities.

CASE I - I will give you Rs. 300

If I give you Rs. 300, then I will win Rs. 100 bet. Thus, you have to give me Rs. 100. This is NO WIN NO LOSE case.

CASE II - I won't give you Rs. 300

If I won't give you Rs. 300, then I will lose Rs. 100 bet. Thus, I have to give you Rs. 100 which I will give you with smile :-) (of course, from Rs. 200 you gave me initially) Here, I will make Rs. 100 and you will lose Rs. 100

So the moral - you should not bet !!!

At the Party:

1. There were 9 men and children.
2. There were 2 more women than children.
3. 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:

4. There were 4 of one group.
5. There were 6 of one group.
6. 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

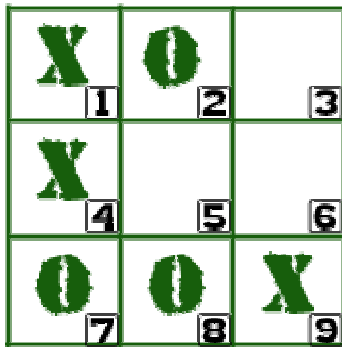
Statement (2) and (3) both can not be true. Thus, contradictory to the fact that exactly one statement is false.

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



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.

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

A mental patient was being treated at an asylum because he thought he was Napoleon.

The warden gave him a lie-detector test and asked him whether or not he was Napoleon. He said, "No". The machine said he was lying.

Is the man delicious or not?

Submitted by : Bob

Answer

It is a paradox !!!

The machine said that he was lying. It means that he was Napoleon. But remember that he is a mental patient in asylum because he thought he was Napoleon. So if we assume that he is a mental patient and nothing is wrong with the lie-detector machine, it is a paradox

You are working in a store that stocks bangles. Three boxes of bangles have been incorrectly labeled. The labels say Red Bangles, Green Bangles and Red & Green Bangles.

How can you re-label the boxes correctly, by taking only one bangle from one box?

Answer

Keep in mind that boxes are incorrectly labeled.

Take out one bangle from the box labeled "Red & Green Bangles". There are 2 possibilities:

If that bangle is Red, it means that box contains Red Bangles. The box labeled as "Green Bangles" contains Red & Green Bangles. And box labeled "Red Bangles" contains Green bangles.

RED GREEN BOX --- Red Bangles
RED BOX --- Green Bangles
GREEN BOX --- Red & Green Bangles

If that bangle is Green, it means that box contains Green Bangles. The box labeled as "Green Bangles" contains Red Bangles. And box labeled "Red Bangles" contains Red & Green Bangles.

RED GREEN BOX --- Green Bangles
RED BOX --- Red & Green Bangles
GREEN BOX --- Red Bangles

What do you throw out when you want to use it,
But you take in when you don't want to use it?

Submitted by : kirby belinda shaver

Answer

An Anchor

When you want to anchor the boat, you throw an anchor out of the boat (i.e. throw out when you want to use it), and take it in when you want to sail again (i.e. you take in when you don't want to use it)

Fishing net is also the possible answer

There are three errors in the statement of this problem. You must detect all of them to receive full credit.

Answer

1. Errors is spelled incorrectly (spelled "errers" in the puzzle).
2. Receive is spelled incorrectly (spelled "recieve" in the puzzle).
3. The third error is that there are only two errors, not three.

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

If it is snowing at midnight, what is the possibility that it will be sunny in the same place 72 hours later?

Submitted by : Edward Sanderson

Answer

There is zero possibility.

After 72 hours i.e. 3 days, it will be midnight again. Hence, there is no possibility that it will be sunny in the same place.

Incase of North and South poles - the areas of midnight sun, midnight sun appears only in the summer and there is no snowing in the summer. The only possibility in such places is the time when season changes from winter to summer and it is snowing during the last 2 days of winter.

There is a lady who has 2 children, 3 grandchildren and 4 great grandchildren. The lady who had all of these kids is only 25 years old.

How is this possible?

Submitted by : Jennifer

Answer

The lady was born on 29th February. Her birthday comes once every 4 years. Thus, her age is 25 year but she is actually 100 years old.

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.

Submitted by : Andrew

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.

There is a boat docked on the shore and there is a ladder on the side of the boat which reads 10 feet. The high tide comes in at 10:00AM and water level increases constantly at the rate of 2 feet per hour.

What will the ladder read at 12:30PM?

Submitted by : Shann Ezmat

Answer

The ladder will read 10 feet.

It is given that the ladder is on the side of the boat i.e the ladder is attached to the boat. And the boat floats on the water. Therefore, the boat rises with the water level and so the ladder attached to it. Hence, the ladder will read the same i.e 10 feet.

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?

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. Subramaniam. 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.

On one side of a card is written :

"THE SENTENCE ON THE OTHERSIDE OF THIS CARD IS TRUE."

On turning the card over you find:

"THE SENTENCE ON THE OTHERSIDE OF THIS CARD IS FALSE."

Which sentence is true?

Answer

It's a Paradox. Both the sentences are contradictory to each other. If you say that the first sentence is true, then the second will contradict it and vice versa

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.

My grandson is about as many days as my son is weeks, and my grandson is as many months as I am in years. My grandson, my son and I together are 160 years.

Can you tell me my age in years?

Answer

I am 26 years old. My son is 56 years old and my grandson is 8 years old.

I am 96 years old. My son is 56 years old and my grandson is 8 years old.

This problem is conveniently solved by writing down the necessary equations.

Let M be my age in years.

If S is my son's age in years, then my son is $52S$ weeks old. If G is my grandson's age in years, then my grandson is $365G$ days old. Thus,
 $365G = 52S$ ----- (I)

Since my grandson is $12G$ months old,
 $12G = M$ ----- (II)

Since my grandson, my son and I together are 160 years,
 $G + S + M = 160$ ----- (III)

Substituting values of S and M from (I) and (II),
 $G + (365/52)G + 12G = 160$
 $(52 + 365 + 12 \cdot 52)G = 160 \cdot 52$
 $1041G = 160 \cdot 52$
 $G = 7.99$ i.e. 8 years

Hence, $S = (365/52) \cdot 7.99 = 56.09$ i.e. 56 years
and $M = 12 \cdot 7.99 = 95.91$ i.e. 96 years

Thus, I am 96 years old. My son is 56 years old and my grandson is 8 years old

What numbers do X and Y represent in the following series:

2, 6, 12, 20, 30, 42, X, Y

Submitted by : Milind Gadagkar

Answer

X=56 and Y=72

The pattern is the multiplication of two consecutive numbers starting with 1.

Second number = $2 + 4 = 6$
Third number = $6 + 6 = 12$
Forth number = $12 + 8 = 20$
Fifth number = $20 + 10 = 30$
Sixth number = $30 + 12 = 42$
Seventh number = $42 + 14 = 56$
Eighth number = $56 + 16 = 72$

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)

Answer

As given, the person wanted to withdraw $100X + Y$ paise.

But he got $100Y + X$ paise.

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

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)

$$2N - 1 = 45$$

$$2N = 46$$

$$N = 23$$

$$\text{And } X = 1$$

Case II: (23,2)

$$2N - 1 = 21$$

$$2N = 22$$

$$N = 11$$

$$\text{And } X = 2$$

Hence, there are 2 possible answers

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?

Submitted by : Cake

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 its reverse and itself is 396. Only 236 satisfies this condition. Hence, the sum of the three digits is 11.

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.

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

There is a two digit number, the second digit of which is 4 less than its first digit. Also, the number is divisible by the sum of its digits and if you do so, the quotient would be 7.

Find the number.

Answer

The number is 84.

Let's assume that the first digit is N. Hence, the second digit is (N-4) and the number is
 $= 10N + (N-4)$
 $= 11N - 4$

Now, it is given that the number is divisible by the sum of its digit and the quotient would be 7.
 $(11N - 4) / (N + N - 4) = 7$
 $(11N - 4) / (2N - 4) = 7$
 $(11N - 4) = 7 * (2N - 4)$
 $11N - 4 = 14N - 28$
 $3N = 24$
 $N = 8$

Thus, the first digit is 8, the second digit is 4 and the required number is 84

What are the next two numbers in the series?

-2, 4, -12, 48, -240, ?, ?

Submitted by : Lynda

Answer

The next two numbers in the series are 1440 and -10080.

The pattern is - multiply previous number by the current position number and then take negative of the result (i.e. multiply by -1), starting with 2.

Second Number = $-2 * -2 = 4$
 Second Number = $4 * -3 = -12$
 Third Number = $-12 * -4 = 48$
 Fourth Number = $48 * -5 = -240$
 Fifth Number = $-240 * -6 = 1440$
 Sixth Number = $1440 * -7 = -10080$

Thus, the next two numbers are 1440 and -10080.

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?

Submitted by : David Johnson

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 $1000 * Z * Z * Z$

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

Using the numbers 0 to 9 once each, what combination will add up to exactly 100?

Note that you can use ONLY ADDITION.

Submitted by : Rich Martin

Answer

It is impossible to get 100 using digits 0-9 once each and only addition.

All digits from 0 to 9 add up to 45. Now, take any two digits (and make a two digit number)

All digits from 0 to 9 add up to 45. Now, take any two digits (and make a two-digit number) and add it to the remaining digits. The result will always increase by a multiple of 9. e.g Let's take 1 and 2 i.e. 12 and add all remaining digits to it, the total is 54 i.e. $45 + 9$.

Thus, whatever you do the answer will always be $45 + 9X$, where X is an integer. In other words, we are trying to solve $45 + 9X = 100$ for integer value of X .

Thus, it is impossible to get 100 using digits 0-9 once each and only addition

doctor gives you 3 pills telling you to take one every half hour.

How long would the pills last?

Submitted by : Missy

Answer

1 Hour

Let's assume that you take the first pill at 10:00. Hence, as per the doctor's instruction, you will take the second pill at 10:30 and the third pill at 11:00. Thus, total of one hour or 60 minutes from 10:00 to 11:00.

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,
 $1 + 2 + 3 + \dots + (X-1) = (X+1) + (X+2) + (X+3) + \dots + N$

Both the sides of the above equations are in A.P. Hence, using A.P. summation formula,

$$[(X-1)/2][2*(1) + (X-1-1)] = [(N-X)/2][2*(X+1) + (N-X-1)]$$

$$[X-1][(2) + (X-2)] = [N-X][(2X+2) + (N-X-1)]$$

$$(X-1)(X) = (N-X)(N+X+1)$$

$$X^2 - X = N^2 + NX + N - NX - X^2 - X$$

$$\begin{aligned}
X^2 - X &= N^2 + NX + N - NX - X^2 - X \\
X^2 &= N^2 + N - X^2 \\
2X^2 &= N^2 + N \\
X^2 &= (N^2 + N)/2 \\
X^2 &= N(N+1)/2
\end{aligned}$$

Now, using Trial and Error method to find values of N and X such that above equation is satisfied, we get

1. $N = 8, X = 6$
2. $N = 49, X = 35$
3. $N = 288, X = 204$
4. $N = 1681, X = 1189$
5. $N = 9800, X = 6930$

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.

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 8C_3 ways.

But there are 2 such diagonals, hence favourables = $2 * {}^8C_3 = 2 * 56 = 112$

The require probability is

$$= 112 / 41664$$

$$= 1 / 372$$

$$= 0.002688$$

A series comprising of alphabets contains 13 letters. The first seven letters in the given series are A, E, F, H, I, L, M

Can you find the next two letters?

Answer

The next letters in the series are N, O, R, S, U, X.

The pattern is - letters whose English names (Phonetic Pronunciations) start with vowels.

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 thought 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 lengthiest, so it must be the sum of the other four.

+ 4 5 9 3

1 0 7 8 6 1 0

Chintu put some Black marbles and some White marbles into a jar. He then asked his brother Pintu to take out a marble. Pintu drew out a Black marble. Chintu asked Pintu to draw out another marble, and again he drew out a Black marble.

Pintu thought there must be more Black marbles than White marbles in the jar and asked Chintu, "I wonder what is the probability of me drawing a Black marble on a third try?"

Chintu replied, "Exactly 9/10 of what it was of drawing a Black marble on your first draw."

Can you help Pintu to determine how many marbles of each colour had been in the jar in the beginning? Give the minimal possible answer. Also, Pintu knew that there were at least seven marbles in the jar in the beginning.

Answer

There were 8 Black marbles and 4 White marbles in the jar.

Now, we know that the value of N is at least 7. Hence, using trial-n-error on the equation, the minimal value of N must be 12 so that $B=8$ and $W=4$.

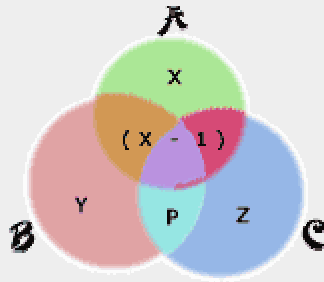
Hence, initially there were 8 Black marbles and 4 White marbles in the jar

In a contest of intelligence, three problems A, B and C were posed.

- Among the contestants there were 25 who solved at least one problem each.
- Of all the contestants who did not solve problem A, the number who solved B was twice the number who solved C.
- The number of participants who solved only problem A was one more than the number who solved problem A and at least one other problem.
- Of all students who solved just one problem, half did not solve problem A.

How many students solved only problem B?

Answer



From 1 and Figure:

$$X + X - 1 + Y + Z + P = 25$$

$$2*X + Y + Z + P = 26$$

$$2*(Y + Z) + Y + Z + P = 26 \text{ (from 4)}$$

$$3*Y + 3*Z + P = 26$$

$$3*Y + 3*(Y - P) / 2 + P = 26 \text{ (from 2)}$$

$$6*Y + 3*Y - 3*P + 2*P = 52$$

$$9*Y - P = 52$$

$$Y = (52 + P) / 9$$

Now, it is obvious that all values are integer. Hence, P must be 2 and Y must be 6.

So 6 students solved only problem B.

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 father is my father's son."

Whose picture was the man looking at?

Answer

The man is looking at his SON's portrait.

Shivangi is the 11th girl from either end of the row of girls.

How many girls are there in a row?

Answer

There are total 21 girls in a row.

Shivangi is the 11th girl from either end of the row of girls. It means that there are 10 girls each, on both sides of her. Hence, there are total 21 girls

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 $7D/12$, 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 $7D/24$.

Hence, person will take $D / (7D/24)$ hours to travel distance D which is $24/7$ hours.

Answer is 3 hours 25 minutes 42 seconds

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?

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

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?

Submitted by : Patricia

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

Solution I

1 Quarter, 9 Dimes, 4 Pennies ($0.25 + 0.90 + 0.04 = \$1.19$)

Solution II

3 Quarters, 4 Dimes, 4 Pennies ($0.75 + 0.40 + 0.04 = \$1.19$)

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.

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

If it is given that:

$$25 - 2 = 3$$

$$100 \times 2 = 20$$

$$36 / 3 = 2$$

What is 444 - 2 = ?

Answer

There are 3 possible answers to it.

Answer 1 : 9

Simply replace the first number by its square root.

$$(25) 5 - 2 = 3$$

$$(100) 10 \times 2 = 20$$

$$(36) 6 / 3 = 2$$

$$(144) 12 - 3 = 9$$

Answer 2 : 11

Drop the digit in the tens position from the first number.

$$(2) 5 - 2 = 3$$

$$1 (0) 0 \times 2 = 20$$

$$(3) 6 / 3 = 2$$

$$1 (4) 4 - 3 = 11$$

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).

$$(2) 5 - 2 = 3$$

$$10 (0) \times 2 = 20$$

$$(3) 6 / 3 = 2$$

$$14 (4) - 3 = 11$$

Answer 3 : 14

Drop left and right digit alternatively from the actual answer.

$$25 - 2 = (2) 3 \text{ (drop left digit i.e. 2)}$$

$$100 \times 2 = 20 (0) \text{ (drop right digit i.e. 0)}$$

$$36 / 3 = (1) 2 \text{ (drop left digit i.e. 1)}$$

$$144 - 3 = 14 (1) \text{ (drop right digit i.e. 1)}$$

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 $84 \times 16 = 1344$.

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?

Answer

Three such numbers are 1, 135 and 144.

It seems that most numbers will eventually end up at 0 when we apply the rule repeatedly. But there are a few numbers that have the property that when we apply the rule repeatedly, we never end up at 0.

Start with 332, then we get $(3+3+2) * (3*3*2) = 144$
And then $(1+4+4) * (1*4*4) = 144$

Thus if we reach 144, we stay there however many times we apply this rule. We say that 144 is fixed by this rule. Now try 233 or 98 or 332 or 1224. They all fall into the same group i.e. we reach 144.

There is another number that is fixed by this rule; it is 1 (because the sum of the digits of 1 is 1, and the product of the digits is 1 so, starting with 1, the answer is $1 * 1 = 1$).

And the third one is 135.

If you know some other numbers, do let us know.

A murderer is condemned to death. He has to choose between three rooms. The first is full of raging fires, the second is full of assassins with loaded guns, and the third is full of lions that haven't eaten in 3 years.

Which room is the safest for him?

Submitted by : Helen Normandin

Answer

The third room - full of lions - is the safest.

The third room is full of lions that HAVEN'T EATEN IN 3 YEARS. It is obvious that they won't survive without eating for 3 years, they must be dead.

Thirty white horses on a red hill,
First they champ,
Then they stamp,
Then they stand still.

Answer

Teeth

Thirty white horses are the teeth

Thirty white horses are the teeth
A red hill is the gum
First they champ i.e. munch or bite the food
Then they stamp i.e. crush the food
Then they stand still i.e. do nothing as food is eaten

If there is a Yellow house on Bluebird Lane, a Green house on Orange Street, a Pink house on Kitten Road, a Black house on Whitehorse Pike and a Purple house on Firebird hill, where's the White house?

Submitted by : Michelle

Answer

The White House is in Pennsylvania Ave. in Washington DC.

The other information is just to divert your mind

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?

Submitted by : Max

Answer

There are 5 such expressions.

$$99 + (9/9) = 100$$

$$(99/.99) = 100$$

$$(9/.9) * (9/.9) = 100$$

$$((9*9) + 9)/.9 = 100$$

$$(99-9)/.9 = 100$$

Can you name three consecutive days without using the words Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, or Sunday?

Submitted by : Helen Normandin

Answer

Yesterday, Today, Tomorrow

Yesterday, Today, Tomorrow

More combinations can be made using Day-Before-Yesterday and Day-After-Tomorrow.

Also, "14 November, 15 November, 16 November" is the valid answer.

What has roots as nobody sees,
Is taller than trees,
Up, up it goes,
And yet never grows?

Submitted by : Sam

Answer

A Mountain

A mountain has roots that hold it up under the ground, which nobody sees.

It is taller than trees.

It goes up and up as it is so tall, but it never grows.

How many months have 29 days in year 2000?

Which month(s)?

Submitted by : ASHLEY

Answer

All 12 months have 29 days in year 2000.

The question is how many months have 29 days and not EXACTLY 29 days. Hence, all the months in year 2000 have 29 days i.e. January(31), February(29), March(31), April(30), May(31), June(30), July(31), August(31), September(30), October(31), November(30), December(31)

You've often cut me through in the years
Yet it is you that bursts into tears

Who am I?

Submitted by : Dan Sattary-Javid

Answer

An Onion

What walk on 4 legs in the morning, 2 legs in the afternoon and 3 legs at the night?

Submitted by : jon

Answer

A human being

A human being crawls on 4 legs (2 legs + 2 hands) when child, walks on 2 legs when young and walks on 3 legs (2 legs + walking stick) when old

There were an electrician and a plumber waiting in line for admission to the Home Show. One of them was the father of the other's son.

How could this be possible?

Answer

The electrician and the plumber are Husband-Wife.

Hence, one is the father and the other is the mother.

I give you a group of three. One is sitting down, and will never get up. The second eats as much as is given to him, yet is always hungry. The third goes away and never returns.

What are they?

Submitted by : Chris

Answer

The first line states "a group of three". It means that the answer should contain three things related to each other and ofcourse satisfies the given conditions. One such group is:

Stove, Fire, and Smoke

If an odd number is red and an even number is blue and you add them together what colour does it make?

Submitted by : Dino

Answer**Red**

It is given that an odd number is Red and an even number is Blue. Also, when you add an odd number to an even number, the result is an odd number. Thus, the result makes the Red colour.

Note that Purple is not the answer as we are adding numbers and not the colours.

If today is Wednesday, what is one day before the day, after the day, three days after the day before yesterday?

Submitted by : Jennifer Renick

Answer**Thursday**

Start backwards.

Today is Wednesday.

The day before yesterday is Monday.

Three days after Monday is Thursday.

The day after Thursday is Friday

The day before Friday is Thursday.

Also, note that the first two conditions cancel each other out as one day before the day, one day after the day is the same day. Hence, it can be reduced to "three days after the day before yesterday".

Which is correct:

A> The Second Millennium began on Jan 1, 2000

B> The Second Millennium will begin on Jan 1, 2001

Answer**Neither is correct.**

The second millennium began January 1, 1001.

It cannot be seen, cannot be felt
Cannot be heard, cannot be smelt
It lies behind stars and under hills
And empty holes it fills
It flows and falls and flutters and flies

Ends life, kills laughter.

Answer

The darkness (The dark)

The darkness cannot be seen, cannot be felt, cannot be heard, cannot be smelt. There is darkness behind stars and under hills. Also, there is darkness in empty holes

What is so fragile that when you say its name you break it?

Answer

Silence

You break the silence when you say "Silence". ;-)

A similar riddle :

If you say my name, I am not there anymore

When was the last time all the digits in the date (dd-mm-yyyy) were a prime number? When will the next one be?

Ignore any leading zeroes.

Submitted by : Ben

Answer

The last time all the digits in the date (dd-mm-yyyy) were a prime number on 27-7-777 and the next one will be on 2-2-2222

Note that 1 is not a Prime number. And single digit prime numbers are 2, 3, 5 and 7.

girl has a certain number of pets. All but two are dogs, all but two are cats and all but two are goats.

How many pets does this girl have?

Submitted by : Kimi

Answer

The answer is 3 i.e. 1 dog, 1 cat and 1 goat

The answer is 3 i.e. 1 dog, 1 cat and 1 goat

It says "all but two are dogs", which means that 2 are not dog. Similarly, 2 are not cat and 2 are not goat. Thus solution is there are 3 pets out of which one is dog, one is cat and one is goat.

Also, there is one more aspect to it. The girl might have only 2 pets and none of them is dog or cat or goat

Ben can never tell a lie, George can never tell the truth.

One of them said, "The other one said he was George".

Who said that?

Submitted by : Zachary Morrison

Answer

The speaker is George.

Since Ben can't lie, he can't say that he is George. Similarly, since George can't tell the truth, he too can't say that he is George. Thus, none of them can say that he is George. It means that the speaker is lying. Hence, the speaker must be George.

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

There is a man who lives on the top floor of a very tall building. Everyday he gets the elevator down to the ground floor to leave the building to go to work.

He has noticed that when he gets on the elevator and goes to the 10th floor, he has to walk the rest of the way to the top floor. When he goes to the 20th floor, he has to walk the rest of the way to the top floor. When he goes to the 30th floor, he has to walk the rest of the way to the top floor. When he goes to the 40th floor, he has to walk the rest of the way to the top floor. When he goes to the 50th floor, he has to walk the rest of the way to the top floor. When he goes to the 60th floor, he has to walk the rest of the way to the top floor. When he goes to the 70th floor, he has to walk the rest of the way to the top floor. When he goes to the 80th floor, he has to walk the rest of the way to the top floor. When he goes to the 90th floor, he has to walk the rest of the way to the top floor. When he goes to the 100th floor, he has to walk the rest of the way to the top floor.

of the way unless it's raining! Why?

Answer

This is probably the best known and most celebrated of all lateral thinking puzzles. It is a true classic.

The man is very, very short and can only reach halfway up the elevator buttons. However, if it is raining then he will have his umbrella with him and can press the higher buttons with it.

My house has a number.

1. If my house number is a multiple of 3, then it is a number from 50 through 59.
2. If my house number is not a multiple of 4, then it is a number from 60 through 69.
3. If my house number is not a multiple of 6, then it is a number from 70 through 79.

What is my house number?

Answer

The house number is 76.

From (1) and (3), the house number must be from 50 to 59 or 70 to 79. Take any number. It will be either multiple of 3 or not. Also, a number multiple of 6 is always a multiple of 3. Hence, the house number can be 51, 54, 57, 70, 71, 73, 74, 76, 77 or 79.

From (2), if the house number is not a multiple of 4, then it is a number from 60 through 69. There is not a single number between 60 and 69 in short-listed numbers above. Hence, the house number must be a multiple of 4 i.e. 76

Hence, the house number is 76.

Prince Sindbad went to fight a 3-headed, 3-tailed dragon. He has a magic sword that can, in one stroke, chop off either one head, two heads, one tail, or two tails.

The dragon is of a type related to the hydra. If one head is chopped off, a new head grows. If one tail is chopped off, two new tails grow. If two tails are chopped off, one new head grows. If two heads are chopped off, nothing grows.

What is the smallest number of strokes required to chop off all heads and tails of the dragon, thus killing it?

Answer

Total 9 strokes are required to chop off all heads and tails of the dragon

Total 9 strokes are required to chop off all heads and tails of the dragon.

Note that all of the tails must be converted to heads in such a way that the dragon is left with an even number of heads.

The way to do this in the smallest number of strokes would be to first convert the 3 tails to 6 tails by using 3 one-tail strokes. Then converting the 6 tails to 3 heads via 3 two-tail strokes. Finally, the now 6-headed dragon can be killed with 3 two-head strokes.

Thus, total of 9 strokes to chop off all heads and tails of the dragon

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

You are in a room with 2 doors leading out. Behind 1 door is a coffer overflowing with jewels & gold, along with an exit. Behind the other door is an enormous, hungry lion that will pounce on anyone opening the door. You do not know which door leads to the treasure & exit, & which door leads to the lion.

In the room you are in, are 2 individuals. The first is a knight, who always tells the truth, & a knave, who always lies. Both of these individuals know what is behind each door. You do not know which individual is the knight, or which one is the knave.

You may ask 1 of the individuals exactly 1 question. What should you ask in order to be certain that you will open the door with the coffer behind it, instead of the hungry lion?

Answer

There are 2 possible answers for this puzzle:

Answer 1: You ask one of the individuals what the other one would say if you asked him or her which door you should open to get to the coffer. In this case, you would open the other door.

Answer 2: You ask one of the individuals what the other one would say if you asked him or her which door is holding back the hungry lion. In this case, you would open this door

A Father asks his son to go shopping for apples one day. He gives his son exactly 100 pence and instructs that he must spend all of it and buy exactly 100 apples from the market.

The market sells three kinds of apples. Good apples are priced at 10 pence, Average apples at 5 pence and Rotten apples at 0.5 pence.

It does not matter what type of apples the boy buys. How many of each apple must the boy buy in order to fulfil his father's instructions.

Submitted by : Vincent Kamal Murray

Answer

Assume that the son will buy total of X apples of 10 pence each, Y apples of 5 pence each and Z apples of 0.5 pence each.

As the son must buy 100 apples,
 $X + Y + Z = 100$ -----I

Also, the total price must be 100 pence,
 $10 * X + 5 * Y + 0.5 * Z = 100$
 $20 * X + 10 * Y + Z = 200$ -----II

Subtracting equation I from equation II,
 $19 * X + 9 * Y = 100$

It is obvious that values of X, Y and Z are integers. So using trial and error, $X = 1$ and $Y = 9$

Using values of X and Y, $Z = 90$

1 Good apple = 10 pence
9 Average apple = 45 pence
90 rotten apples = 45 pence
Hence, total of 100 apples for 100 pence

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 vendor 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, fourth 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.

A terrorist, after having committed a crime wanted to cross the border. He knew that a pick up vehicle had been arranged at the border for him. But the driver would identify him by a code word which the terrorist didn't know. So he mailed to his group leader using a certain code language. This is what he mailed:

TWDK XJ KWQ GIPQ TIFP X HQQP KI LJQ DK KWQ YIFPQF?

His group leader replied back on mail, saying:

ZIL HQQP KI JDZ KWDK "XR TXJWQJ TQFQ WIFJQJ YQVVDFJ TILCP FXPQ"

Can you decipher the code and make out as to what the terrorist mailed and what was the reply sent back to him?

HINT : In the code language, QUEEN ELIZABETH can be written as ELQQH QCXADYQKW

Submitted by : Milind Gadagkar

Answer

The terrorist mailed : WHAT IS THE CODE WORD I NEED TO USE AT THE BORDER?

The Leader replied : YOU NEED TO SAY THAT "IF WISHES WERE HORSES BEGGARS WOULD RIDE"

Use the hint. It says that "In the code language, QUEEN ELIZABETH can be written as ELQQH QCXADYQKW." It means that in code language E means Q, L means U, Q means E, H means N and so on.

QUEEN ELIZABETH

ELQQH QCXADYQKW

Use the above hint and put decode the corresponding characters.

The terrorist:

TWDK XJ KWQ GIPQ TIFP X

HAT I THE E I

HQQP KI LJQ DK KWQ YIFPQF?

NEE T U E AT THE B E

The leader:

GIL HQQP KI JDZ KWDK

U NEE T A THAT

"XR TXJWQJ TQFQ WIFJQJ

I I HE E E H E

YQVDFJ TILCP FXPQ"

E A UL I E

Now try to figure out some words like WHAT, NEED, TO, USE, IS etc. and decode the sentences further using the characters you get from that

sentences further using the characters you get from that.

Continue the above procedure, you can figure out more words like CODE, WORD, YOU, SAY, IF, WERE, HORSES, WOULD etc. and finally you will get the answer

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

$$\begin{array}{r} S\ T\ I\ L\ L \\ +\ W\ I\ T\ H\ I\ N \\ \hline \end{array}$$

L I M I T 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 S, no other letter can be 3 and all other S in the puzzle must be 3.

Answer

The value of L must be one more than W i.e. $L=W+1$ and there must be one carry from $S+I=L$. Also, the value of S must be 9 as $S+I=L$ with one carry from $T+T=M$, which means that the value of T must be greater than 4.

From $I+H=L$, the value of H must be 0 as the value of S is 9.

Now, applying all those constraints and using trial-n-error, we get two possible answers.

$$\begin{array}{r} 9\ 7\ 1\ 6\ 6 \\ +\ 5\ 1\ 7\ 0\ 1\ 3 \\ \hline 6\ 1\ 4\ 1\ 7\ 9 \end{array} \qquad \begin{array}{r} 9\ 8\ 5\ 3\ 3 \\ +\ 2\ 5\ 8\ 0\ 5\ 6 \\ \hline 3\ 5\ 6\ 5\ 8\ 9 \end{array}$$

Replace the letters with the correct numbers.

T W O

X TWO

THREE

Submitted by : Timmy Chan

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

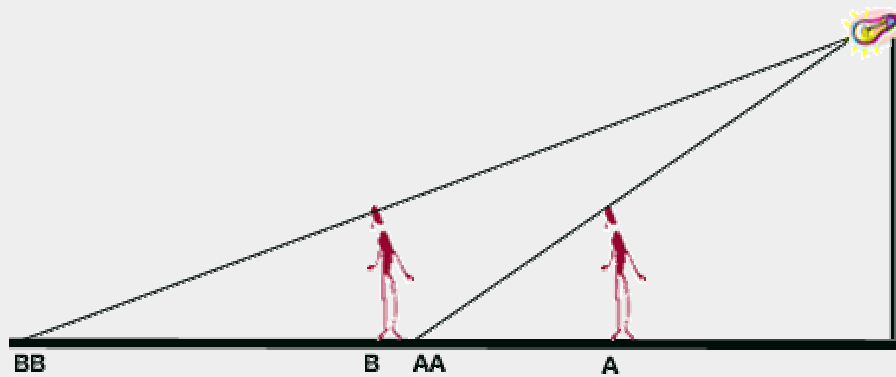
You can reduce the number of trials. T must be 1 as there is multiplication of T with T in hundred's position. Also, O can not be 0 or 1. Now, you have to find three digit number whose square satisfies above conditions and square of that has same last two digits. Hence, it must be between 102 and 139

A man is walking along a level road lit only by a single streetlight. He is moving in a straight line, at a constant speed.

He passes the lamppost and leaves it behind, which makes his shadow lengthen.

Does the top of the man's shadow move faster, slower or at the same speed as the man? Justify your answer.

Answer



The top of the shadow moves faster than the man.

Let A be the position of the man at one point in time and B be the position after he walked some distance. Also, let AA and BB be the corresponding positions of the top of his shadow. It is clear from the diagram that the distance AA-BB is greater than distance A-B. Hence, the top of the shadow moves faster.

Substitute digits for the letters to make the following Division true

GET

NUT|GINGER

| NUT

EINE

GUAO

TTOR

EOGD

U A O

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 U, no other letter can be 3 and all other U in the puzzle must be 3.

Submitted by : Calon

Answer

I=0, G=1, E=2, T=3, A=4, R=5, O=6, U=7, N=8, D=9

At a first glance, it is obvious that G=1, E=2 and T=3. Everything else is pretty simple now.

1 2 3

8 7 3 | 1 0 8 1 2 5

| 8 7 3

2 0 8 2

1 7 4 6

3 3 6 5

2 6 1 9

7 4 6

In Column-I below, are given some words. These have been translated into a code language. The code equivalents of the words in Column-I are given in Column-II, not necessarily opposite to the corresponding words. Also, the codes for the different letters in each word have also not been given the same order as these letter occur in the original word.

COLUMN-I	COLUMN-II
----------	-----------

~~~~~

|              |            |
|--------------|------------|
| DELIBERATION | aemrqs     |
| CONSIDERATE  | ccehlmo    |
| GHOSTLIKE    | cfhmoqqr   |
| WORLDLY      | cdgmqrxyz  |
| KNOWLEDGE    | adefmopqqs |
| ROCKET       | cefkmpqqsz |

Can you decode the individual letter codes?

### Answer

We first find the exact codes of the each given words.

DELIBERATION is a 12-letter word. So its code is cefkmpqqsz.

CONSIDERATE is a 11-letter word. So its code is adefmopqqs.

GHOSTLIKE and KNOWLEDGE both are 9-letter words. But KNOWLEDGE has 2 E's and so its code is cfhmoqqr and hence the code for GHOSTLIKE is cdgmqrxyz.

WORLDLY is a 7-letter word. So its code is ccehlmo.

ROCKET is a 6-letter word. So its code is aemrqs.

Thus, the words and their codes are:

|              |            |
|--------------|------------|
| DELIBERATION | cefkmpqqsz |
|--------------|------------|

|             |            |
|-------------|------------|
| CONSIDERATE | adefmopqqs |
|-------------|------------|

|           |           |
|-----------|-----------|
| GHOSTLIKE | cdgmqrxyz |
|-----------|-----------|

WORLDLY      ccehlmo

KNOWLEDGE      cfhmoqqr

ROCKET      aemrqs

The common letter in the given words is O and the common code letter is m. So m stands for O.

In GHOSTLIKE and WORLDLY, the other common code letter c stands for L.

In WORLDLY and ROCKET, the other common code letter e stands for R.

In DELIBERATION and WORLDLY, the remaining common code letter (other than c, e and m) o stands for D.

Working similarly, we get a-C, c-L, d-S, e-R, f-N, g-H, h-W, k-B, l-Y, m-O, o-D, p-A, q-E, r-K, s-T, x-G, z-I

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

S E N D

+ M O R E

-----

M O N E Y

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 S, no other letter can be 3 and all other S in the puzzle must be 3.

*Submitted by : Omesh Garg*

### Answer

It is obvious that  $M=1$ .

If  $S=9$  and if there is a carry, the maximum value of O will be 1. But  $M=1$ . Hence, O has to be 0.

Also, S has to be 9 as there is no other way of getting total 10 for  $S+M$ .



+ 1 0 8 5      N=6, D=7, R=8, S=9

-----

1 0 6 5 2

In Column-I below, are given some words. These have been translated into a code language. The code equivalents of the words in Column-I are given in Column-II, not necessarily opposite to the corresponding words. Also, the codes for the different letters in each word have also not been given the same order as these letter occur in the original word.

COLUMN-I      COLUMN-II

~~~~~

TAPE moi

COP lhhpok

TIE nls

ROTATE nhpk

SAY nkpl

TREAT msr

YEAR khlp

SIP hrp

TYRE pmlh

Can you decode the individual letter codes?

Answer

We first find the exact codes of the each given words.

ROTATE is a 6-letter word. So its code is lhhpok. And **h is for T**.
TREAT is a 5-letter word. So its code is khlp.

The 4-letter words are TAPE, YEAR, TYRE and codes are nhpk, nkpl, pmlh. YEAR and TYRE have 3 letters in common (Y, E, R). They must be either nhpk or nkpl. Hence, the code for TAPE is pmlh and **m is for P**. Also the code for TYRE is nhpk (as h is for T) and the code for YEAR is nkpl.

The 3-letter words are COP, TIE, SAY, SIP and codes are moi, nls, msr, hrp.
The code for TIE is hrp.
The code for SIP is msr.
The code for COP is moi. And the code for SAY is nls.

Thus, the words and their codes are:

ROTATE lhhpok

TREAT khlp

TAPE pmlh

TYRE nhpk

YEAR nkpl

TIE hrp

COP moi

SIP msr

SAY nls

So far we know that h is for T and m is for P.

In SAY and SIP, the common letter is S stands for s.
In TYRE and SAY, the common letter Y stands for n.
Thus, in SAY, the remaining letter A stands for l.

In TIE and SIP, the common letter I stands for r.
Thus, in TIE, the remaining letter E stands for p.

In ROTATE and COP, the common letter O stands for o.
Thus, in ROTATE, the remaining letter R stands for k.

Thus, in ROTATE, the remaining letter R stands for k.
Also, in COP, the remaining letter C stands for i.

Summerizing h-T, i-C, k-R, l-A, m-P, n-Y, o-O, p-E, r-I, s-S

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

Submitted by : Erin

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
= $365/365 * 364/365 * 363/365 * \dots * 317/365 * 316/365$
= $(365 * 364 * 363 * 362 * \dots * 317 * 316)/365^{50}$
= 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!!!

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.

$$\begin{array}{r} 2442 \\ 1442 \\ + 5442 \\ \hline 9326 \\ 4114 \\ 5114 \\ + 0114 \\ \hline 9342 \end{array}$$

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?

Submitted by : Travis Lara

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, $B1 \leq B2 \leq B3 \leq B4 \leq B5$

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,

$$4*(B1 + B2 + B3 + B4 + B5) = (110 + 112 + 113 + 114 + 115 + 116 + 117 + 118 + 120 + 121)$$

$$4*(B1 + B2 + B3 + B4 + B5) = 1156$$

$$(B1 + B2 + B3 + B4 + B5) = 289 \text{ pounds}$$

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

In a school, main-computer password changes after every hour based on set of words chosen for each day. The following is the set of passwords for a particular day.

9AM-1st Password: is not ready cloth brain bath simple

10AM-2nd Password: ready not is cloth simple bath brain

11AM-3rd Password: cloth is not ready brain bath simple

12PM-4th Password: not is cloth ready simple bath brain

1PM-5th Password: ready cloth is not brain bath simple

Following the same rule, what will the 6th Password, if the 1st password is "Shy Shelly Says She Shall Sew Sheets"?

Answer

The 6th Password will be "Shy She Says Shelly Sheets Sew Shall".

The pattern is - In the first step, the first three and the last three words are written in a reverse order. Then, the first four and the last three words are written in a reverse order. The process is repeated to obtain successive passwords.

9AM - 1st Password: Shy Shelly Says She Shall Sew Sheets

10AM - 2nd Password: Says Shelly Shy She Sheets Sew Shall

11AM - 3rd Password: She Shy Shelly Says Shall Sew Sheets

12PM - 4th Password: Shelly Shy She Says Sheets Sew Shall

1PM - 5th Password: Says She Shy Shelly Shall Sew Sheets

2PM - 6th Password: Shy She Says Shelly Sheets Sew Shall

"Santa Express" is one kilometer long and always travels at the speed of 60 kilometers per hour.

It passes through a tunnel which is one kilometer long. How long the Express will take to pass completely through the tunnel?

Answer

The express will take total of 2 minutes to pass completely through the tunnel.

The speed of the Santa Express is 60 kms/hr i.e. one km per minute.

The engine of the Express will take one minute to reach from one end to the other end of the tunnel, as it travels at the speed of one km per minute and the tunnel is one km long. Thus, after one minute, the Express will be completely inside the tunnel.

Now it will take another one minute to completely come out of the tunnel. Thus, the express will take total of 2 minutes to pass completely through the tunnel.

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?

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

Assume that the initial length 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

Which number in the series does not fit in the given series:

1 4 3 16 6 36 7 64 9 100

Answer

This is a series with odd positions containing position number whereas even positions containing square of the position.i.e. even position numbers are 4 16 36 64 100 and odd position numbers are 1 3 5 7 9

Hence, 6 does not fit in the series. It should be 5.

Subhash is 14 inches taller than Jatin. The difference between Subhash and Sanjeev is two inches less than between Sanjeev and Jatin. Subhash at 6'6" is the tallest.

How tall are Sanjeev and Jatin?

Answer**Sanjeev is 6' and Jatin is 5'4"**

It is given that Subhash at 6'6" is the tallest and also he is 14 inches taller than Jatin. It means that Jatin is 5'4".

Now as the difference between Subhash and Sanjeev is two inches less than between Sanjeev and Jatin, Sanjeev's height is more than Jatin's. And that is 6'.

Thus, Sanjeev is 6' and Jatin is 5'4

Of the 120 people in the room, $\frac{3}{5}$ are women. If $\frac{2}{3}$ of the people are married, what is the maximum number of women in the room who could be unmarried?

Answer

Maximum 40 women are unmarried.

In the room, there are $(\frac{3}{5}) \times 120 = 72$ Women and hence, 48 Men.

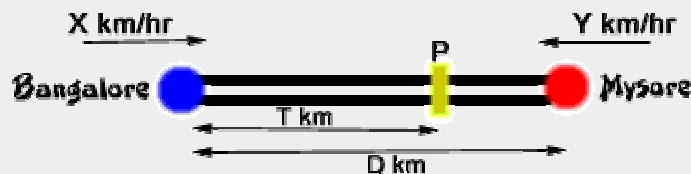
Also, married people are $(\frac{2}{3}) \times 120 = 80$ which means that 40 people are unmarried.

Even assuming all of the men are married, this still leaves $80 - 48 = 32$ others who are married, and those other are women. So at least 32 women must be married, which means that maximum possible number of women who are unmarried is $72 - 32 = 40$

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.

How much faster is one train from other?

Answer



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

Let the distance between Bangalore and Mysore is $D \text{ kms}$.

Also, let speed of the train from Bangalore to Mysore is $X \text{ km/hr}$ and speed of the train from

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

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.

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:

$$\begin{aligned} 10*T + U &= 5*(T + U) \text{ or} \\ 10*T + U &= 5*T + 5*U \text{ or} \\ 5*T &= 4*U \end{aligned}$$

Thus, $T / U = 4 / 5$

Since T and U are digits, T must be 4 and U must be 5.

Next number in the series is 1, 2, 4, 13, 31, 112, ?

Answer

224

A tough one. But analyse the series carefully. No number has digits more than 4. So try to convert them to decimal numbers from base 5 numbers. (just try that) So it turns out to be:

1, 2, 4, 8, 16, 32, ?

Got it !!! Next number should be 64. But all numbers in actual series are base 5 numbers So convert 64 to base 5 and that is 224.

If the day before two days after the day before tomorrow is Monday, what is today?

Submitted by : Ryan Ellis

Answer

Today is Sunday.

"the day before tomorrow" is today. Hence, the question can be re-written as "If the day before two days after today is Monday, what is today?"

Also, "the day before two days after today" is tomorrow. Thus, the question is "If tomorrow is

Also, "the day before two days after today" is tomorrow. Thus, the question is "If tomorrow is Monday, what is today?"

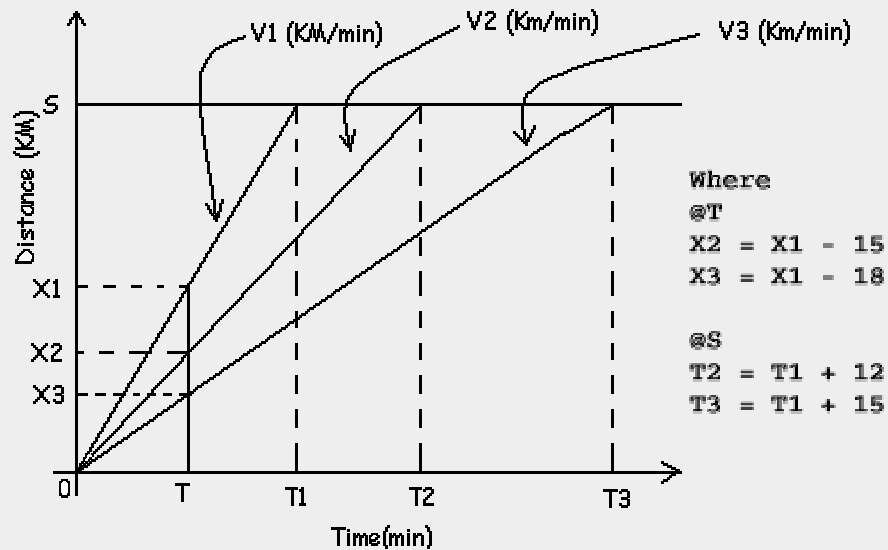
Thus, today is Sunday.

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 race.

Answer



Let us assume that
Speed of First biker = V_1 km/min
Speed of Second biker = V_2 km/min
Speed of Third biker = V_3 km/min
Total time take by first biker = T_1 min
Total distance = S km

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

$$X_1 = V_1 * T \quad \text{----> 1}$$

$$X_1 - 18 = V_3 * T \text{ ----> 3}$$

At a Distance S Km.

$$S = V_1 * T_1 \text{ ----> 4}$$

$$S = V_2 * (T_1 + 12) \text{ ----> 5}$$

$$S = V_3 * (T_1 + 15) \text{ ----> 6}$$

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, $T_1 = 60$ Min.
 Time taken by Second biker, $T_2 = 72$ Min.
 Time taken by first biker, $T_3 = 75$ Min.

Also, we get
 Speed of first biker, $V_1 = 90/T$ km/min
 Speed of second biker, $V_2 = (5/6)V_1 = 75/T$ km/min
 Speed of third biker, $V_3 = (4/5)V_1 = 72/T$ 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 V_1 or V_2 or V_3

Thanks to Theertham Srinivas for the answer !!!

The average scores of the class for exam are as follow:

Average score of the boys = 90

Average score of the girls = 81

Average score of the class = 84

Find whether Class contains more Boys or Girls?

Answer

Assume that there are B boys and G girls in the Class.

Hence from the given data :

$$90*B + 81*G = 84*(B+G)$$

$$90B + 81G = 84B + 84G$$

$$6B = 3G$$

$$2B = G$$

Hence number of Girls in the Class are twice the number of Boys

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

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

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.

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

Someone at a party introduces you to your mother's only sister's husband's only sister-in-law. She has no brothers.

What do you call this lady?

Answer

Mother or Mom

The man who makes it sells it.

The man who buys it doesn't use it.

The man who uses it doesn't see it.

What is it?

Submitted by : Lynsey

Answer

A coffin

The man who makes it sells it as it is of no use for him. The man who buys it doesn't use it because he is still alive. And the man who uses it doesn't see it because he is dead

Can you clock the boiling of an egg for seven minutes, with a 9-minutes, 11-minutes and 14-minutes hourglass?

If yes, then within how many minutes you can do this?

Answer**Method I: 16 minutes**

Start all the hourglasses together. When the sand stops running in the 9-minute hourglass, the 11-minute hourglass will have 2 minutes remaining whereas the 14-minute hourglass will have 5 minutes remaining. Now, turn the 14-minute hourglass on its side and simultaneously drop the egg. When the sand stops running in 11-minute hourglass, straighten the 14-minute hourglass. Thus, the whole process takes just 16 minutes.

Method II: 18 minutes

Start all the hourglasses together. When the sand stops running in the 9-minute hourglass, turn the 14-minute hourglass over. When the sand stops running in 11-minute hourglass, turn again the 14-minute hourglass and simultaneously drop the egg. When the sand stops in the 14-minute hourglass, seven minutes will have elapsed. Thus, the whole process takes 18 minutes.

Sita has six pairs of black gloves and six pairs of brown gloves in her drawer.

In complete darkness, how many gloves must she take from the drawer in order to be sure to get a matching pair (i.e. left hand and right hand gloves of the same color)? Think carefully!!

Answer**13**

She could possibly take out 6 black left hand gloves and then 6 brown left hand gloves, the next one would have to be either the right hand or left hand match.

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 made 20% on it after selling it for Rs 8000.

So the original price of first stamp is
 $= (8000 \times 100) / 80$
 $= \text{Rs } 6666.67$

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

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

So the original price of second stamp is

$$= (8000 \times 100) / 80$$

$$= \text{Rs } 10000$$

Total buying price of two stamps

$$= \text{Rs } 6666.67 + \text{Rs } 10000$$

$$= \text{Rs } 16666.67$$

Total selling price of two stamps

$$= \text{Rs } 8000 + \text{Rs } 8000$$

$$= \text{Rs } 16000$$

Hence, she lost Rs 666.67

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 one 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.

Similarly, 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.

Imagine a railway station clock with the second-hand on the same axis as the two other hands.

How often in a 24-hour day, will the second-hand be parallel to either of the two other hands?

Answer

In a 24-hour day, the second hand will be 5744 times parallel to the two other hands.

In a 24-hour day, the second-hand will be 5714 times parallel to the two other hands.

Within any minute, the second-hand will twice be parallel to each of the two other hands, minute-hand and hour-hand. Thus, there are $(4 \times 60 \times 24)$ 5760 such parallel positions in one day.

But, the hour-hand and the minute-hand are parallel to each other 23 times in 12 hours i.e. 46 times in 24 hours. Therefore, 46 parallel positions have to be deducted. Hence, the correct answer is $(5760 - 46)$ 5714.

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 $(105 \times X)/100$

A year later he receives 2.5% cut. So his salary is $((105 \times X)/100) \times (97.5/100)$ which is Rs. 22702.68

Hence, solving equation $((105 \times X)/100) \times (97.5/100) = 22702.68$
 $X = 22176$

There are 20 poles with a constant distance between each pole. A car takes 24 second to reach the 12th pole.

How much will it take to reach the last pole.

Answer

$$= (19 * 24) / 11$$
$$= 41.45 \text{ seconds}$$

How can 1,000,000,000 be written as a product of two factors neither of them containing zeros?

Answer

$$2^9 * 5^9 \text{ or}$$

$$(2 * 5)^9$$

Solution submitted by Craig :
 $512 * 1,953,125 = 1,000,000,000$

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.

Submitted by : Angela Parr

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
 $= 1 + 3 + 6 + 10 + 15 + 21 + 28 + 36 + 45 + 55 + 66 + 78$
 $= 364 \text{ balls}$

In a room, there are 100 bulbs numbered from 1 to 100. Initially, all of them are OFF.

Mr. Irfan changes the status of bulb 1 and all the other bulbs which are numbered as integer multiple of 1 i.e. if bulb is ON, then he switches it OFF and vice-versa.

After that, he changes the status of bulb 2 and all the other bulbs which are numbered as integer multiple of 2. (i.e. 2, 4, 6, 8, ...) Then he changes the status of bulb 3 and all the other bulbs which are numbered as integer multiple of 3. (i.e. 3, 6, 9, 12, ...)

Mr. Irfan repeats the process for all the numbers till 100.

Can you tell which bulbs will be ON at the end?

Answer

The bulbs 1, 4, 9, 16, 25, 36, 49, 64, 81, 100 will be ON at the end.

As initially all bulbs are OFF, bulbs with odd number of divisors will be ON whereas bulbs with even number of divisors will be OFF.

All the numbers have even number of divisors except Perfect Squares. Hence, total of ten bulbs 1, 4, 9, 16, 25, 36, 49, 64, 81, 100 will be ON and other 90 bulbs will be OFF.

For example,

divisors of 17 are 1 and 17 i.e. total 2 - OFF

divisors of 28 are 1, 2, 4, 7, 14 and 28 i.e. total 6 - OFF

divisors of 36 are 1, 2, 3, 4, 6, 9, 12, 18 and 36 i.e. total 9 - ON

The last years top-6 employees of Marketing Department were (1) Anand, (2) Bhavin, (3) Chetan, (4) Divya, (5) Ekta, (6) Florance.

The highest ranking is 1 and the lowest ranking is 6.

Current years top-6 employees are the same, but all ranked in different positions from that of the last year. The following facts are known:

1. Bhavin's change in ranking is the greatest of the six.
2. The product of Divya's ranking for the two years is the same as the product of Florance's ranking for the two years.

What are the new rankings?

Answer

(1) Chetan, (2) Anand, (3) Ekta, (4) Florance, (5) Bhavin, (6) Divya

From (2), there are two possibilities

1. Divya's ranking changed from 4 to 3 and Florance's ranking changed from 6 to 2.
2. Divya's ranking changed from 4 to 6 and Florance's ranking changed from 6 to 4.

Bhavin's ranking could not have changed by more than 4. But in case of (a), Florance's change in ranking would have been by 4. Hence, contradiction of fact (1). Hence, Divya's ranking changed from 4 to 6 and Florance's ranking changed from 6 to 4.

Since Bhavin's change in ranking is the greatest of the six, his ranking changed by 3 i.e. from 2 to 5 and Ekta's ranking changed to 3. Also, as all the ranking changed, Anand's new ranking must be 2 and Chetan on the top.

Thus, top-6 employees of the year are (1) Chetan, (2) Anand, (3) Ekta, (4) Florance, (5) Bhavin, (6) Divya

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?

Answer

They will both be the same distance from Paris when they meet!!!

If you are on a boat and you throw out a suitcase, will the level of water increase? Please note that the boat is in river and you throw out a suitcase in the river.

Answer

No since the weight of the suitcase was already pushing on the water while it was on the boat

In order to conduct the work at store it is necessary to have a minimum of three workers each day. The staff consists of five persons who work on part time basis. Alice can work on Mondays, Wednesdays and Fridays. Betty cannot report for work on Wednesdays. Carol can report for work on Tuesdays and Wednesdays only. Dorothy cannot work on Fridays. Emmy is available anytime except on the first Monday and Thursday of the month.

During which day of the week, might it be impossible to conduct the work at store? Note that the store remains close on Sundays.

Answer

It will be impossible to conduct the work on first thursday.

Summarizing the availability of staff day-wise.

Monday - Alice, Betty, Dorothy, Emmy (except first Monday)

Tuesday - Betty, Carol, Dorothy, Emmy

Wednesday - Alice, Carol, Dorothy, Emmy

Thursday - Betty, Dorothy, Emmy (except first Thursday)

Friday - Alice, Betty, Emmy

Saturday - Betty, Dorothy, Emmy

Betty and Dorothy are available on all Thursday. Emmy is also available on Thursdays, except first Thursday. Hence, on first Thursday it will be impossible to conduct the work.

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

Insert mathematical functions to convert the 3 numbers on the left side of the equation to equal 6.
I filled in the 2's (using the addition function twice) for you to get you started.

$$1 \quad 1 \quad 1 = 6$$

$$2 + 2 + 2 = 6$$

$$3 \quad 3 \quad 3 = 6$$

$$4 \quad 4 \quad 4 = 6$$

$$5 \quad 5 \quad 5 = 6$$

$$6 \quad 6 \quad 6 = 6$$

$$7 \quad 7 \quad 7 = 6$$

$$8 \quad 8 \quad 8 = 6$$

$$9 \quad 9 \quad 9 = 6$$

Submitted by : Jon

Answer

$$(1 + 1 + 1)! = 6$$

$$2 + 2 + 2 = 6$$

$$(3 * 3) - 3 = 6$$

$$\text{sqrt}(4) + \text{sqrt}(4) + \text{sqrt}(4) = 6$$

$$5 + (5 / 5) = 6$$

$$6 + 6 - 6 = 6$$

$$7 - (7 / 7) = 6$$

$$8 - \text{sqrt}(\text{sqrt}(8+8)) = 6$$

$$(\text{sqrt}(9) * \text{sqrt}(9)) - \text{sqrt}(9) = 6$$

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?

Submitted by : Big Mike

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 oranges

There are six boxes containing 5, 7, 14, 16, 18, 29 balls of either red or blue in colour. Some boxes contain only red balls and others contain only blue.

One sales man sold one box out of them and then he says, "I have the same number of red balls left out as that of blue."

Which box is the one he sold out?

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

The 8" pizza sells for \$4.99 at my favorite pizza store. The store claims they have a great deal on the large 12" pizza, which is specially priced at \$9.54.

What is the per cent discount the store is offering?

Answer

Thus, discount on large pizza = $[1 - (9.54 / 11.23)] \times 100 = 15 \%$

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?

Submitted by : Tara Smith

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 neighbour. 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)

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)?

Answer

Rs.333,062,500

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

Math gurus may use series formula to solve it.(series: 1,3,5,7,9,11.....upto 18250 terms)

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 fourth 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.

Submitted by : Dan Allen

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.

Anna, her brother - Andre, her daughter - Ami, and her son, Adam are tennis players. As a game of doubles

1. Anna's brother is directly across the net from Ami.
2. Adam is diagonally across the net from the worst player's sibling.
3. The best player and the worst player are on the same side of the net.

Who is the best player?

Answer

The best player is Andre.

Find out all possible arrangement such that no condition is contradicted.

From (1), there are two possible arrangements. Discarding two arrangements which are identical to following two.

Andre Anna Andre Adam

----- AND -----

Ami Adam Ami Anna

(I)

(II)

From (2), Anna is the worst player in Case I and Adam is the worst player in Case II.

From (3), Andre is the best player in both the cases.

Hence, the best player is Andre.

What is the last digit of 7^{46} ? In other words, what will the remainder be, if 7^{46} is divided by 10?

Don't try to solve this on calculator, you may get the wrong answer. Also, do explain your answer.

Answer

The last digit of 7^{46} is 9.

The powers of any number have a repeating pattern for the last digit. It can be found easily without performing the entire multiplication of each power.

Let's consider the powers of 7.

7^N	Value	Last Digit
7^0	1	1
7^1	7	7
7^2	49	9
7^3	343	3
7^4	2401	1
7^5	16807	1
7^6	117649	1

Note that there is a repeating pattern of four numbers (1, 7, 9, 3) for the powers of 7. Hence, the last digit of 7^{44} will be 1, of 7^{45} will be 7 and of 7^{46} will be 9.

Also, there is no need to actually perform the entire multiplication. Start with 1, multiply it by 7, discard all digits except units and multiply again by 7 and so on.

Aloysius has four different paintings that he wishes to divide among his three children.

How many different ways can he do this if every child must get at least one painting and all four paintings are different?

Submitted by : Lisa

Answer

Paintings can be divided among them in 72 different ways.

It is obvious that two children will get one painting each and the third child will get two paintings.

Thus, first child can get one painting in 4C_1 ways.

The second child can get one painting (from remaining 3) in 3C_1 ways.

The third child can get two paintings (from remaining 2) in 2C_2 ways.

And, these can be divided among them in $3!$ ways.

Hence, total different ways

$$= ({}^4C_1 * {}^3C_1 * {}^2C_2) * 3!$$

$$= (4 * 3 * 1) * 6$$

$$= 72 \text{ ways}$$

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

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 ;))

Submitted by : Tim Sanders

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.

$$11584 = 3920 \text{ ways}$$

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

The sum of their (father, mother and son) ages is 70. The father is 6 times as old as the son.

When the sum of their ages is twice 70, the father will be twice as old as the son.

How old is the mother?

Submitted by : Tim Sanders

Answer

The mother is 29 years and 2 months old.

Let's assume that son is X years old. Hence, father is $6X$ years old and mother is $(70-7X)$ years old.

It is given that the sum of their ages is 70, which will total 140 after $70/3$ years.

After $70/3$ years, son will be $(X + 70/3)$ years old and father will be $(6X + 70/3)$ years old. Also, it is given that after $70/3$ years, the father will be twice as old as the son. Thus,

$$(6X + 70/3) = 2 * (X + 70/3)$$

$$6X + 70/3 = 2X + 140/3$$

$$4X = 70/3$$

$$X = 35/6$$

Hence, their ages are

Son = $X = 35/6 = 5$ years and 10 months

Father = $6X = 6(35/6) = 35$ years

Mother = $(70 - 7X) = 70 - 7(35/6) = 29$ years and 2 months

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

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,

$$6 * X = 120 + X/2$$

$$12 * X = 240 + X$$

$$11 * X = 240$$

$$X = 21.8182$$

$$X = 21 \text{ minutes } 49.5 \text{ seconds}$$

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

One day Kerry celebrated her birthday. Two days later her older twin brother, Terry, celebrated his birthday.

How? Note that they both celebrated their birthday on their actual birthdays.

Answer

This is a lateral thinking puzzle.

At the time she went into labor, the mother of the twins was traveling by boat. The older twin, Terry, was born first early on March 1st. The boat then crossed a time zone and Kerry, the younger twin, was born on February the 28th. Therefore, the younger twin celebrates her birthday two days before her older brother.

There is one more answer submitted by Beano.

She obviously had an older set of twin brothers and their birthday was 2 days after hers, they just didn't mention that it was also her other twin brothers birthday.

Also, according to Robbie TWINS DONT HAVE TO HAVE THE SAME BIRTHDAY! SOME TWINS ARE BORN 300 DAYS APART !!!

A man went to a party and drank some of the punch. He then left early. Everyone else at the party who drank the punch subsequently died of poisoning.

Why did the man not die? Please note that he did not add the poison. Also, nothing was added to punch after he left.

Answer

This is a lateral thinking puzzle.

The poison in the punch came from the ice cubes. When the man drank the punch, the ice was fully frozen. Gradually it melted, poisoning the punch

What is the four-digit number in which the first digit is $\frac{1}{3}$ of the second, the third is the sum of the first and second, and the last is three times the second?

Submitted by : Dan Allen

Answer

The 4 digit number is 1349.

3. $3 + 9 = 12$

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

Doo-Bee-Doo had born on 1468 B.C. He had lived one-fourth of his life as a boy, one-third of his life as a youth, one-fifth of his life as a man and the remaining 52 years as an old man.

Which year did Doo-Bee-Doo die?

Answer

Doo-Bee-Doo died in 1228 B.C.

Let's assume that Doo-Bee-Doo's age was N years when he died.

(life as a boy) + (life as a youth) + (life as a man) + (life as an old man) = (total life)

$$(N/4) + (N/3) + (N/5) + 52 = N$$

$$15N + 20N + 12N + 52 \cdot 60 = 60N$$

$$13N = 52 \cdot 60$$

$$N = 240 \text{ years}$$

Thus, Doo-Bee-Doo was 240 years old, when he died. As he born in 1468 B.C., he died in (1468-240) 1228 B.C

Computer - Lampshade

Book - Money

Gecko - Wallet

Cookie - ?

What can Cookie go with?

Available Options: Desk, Mouse, Glove, Printer, Tortilla, Checkerboard, Wall, China

Submitted by : Alessandro Tabora

Answer

Cookie can go with either Printer or Checkerboard.

There are two possible answers here.

Answer I - Printer

The pattern is - In each word pair, the first word has N characters whereas the second word has N+1 characters.

Computer (8) - Lampshade (9)

Book (4) - Money (5)
Gecko (5) - Wallet (6)
Cookie (6) - Printer (7)

Answer II - Checkerboard

The pattenen is - In each word pair, both words has same number of vowels.

Computer (3) - Lampshade (3)
Book (2) - Money (2)
Gecko (2) - Wallet (2)
Cookie (4) - Checkerboard (4)

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 $\frac{1}{2}$ of the camels Second Son to get $\frac{1}{3}$ rd of the camels Third Son to get $\frac{1}{9}$ th 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 $\frac{1}{2}$ of it = 9

Second son got $\frac{1}{3}$ of it = 6

Third son got $\frac{1}{9}$ of it = 2

For a total of 17. He then takes his camel back and rides away.....

There are two vehicles, a car and a train, heading towards the same rail crossing. (where a road intersects with the tracks)

Both are travelling at a constant speed of 70mph, and both are at the same distance from the crossing. Neither vehicle changes course or alters its speed. Yet there is no collision and no accident of any kind.

Why not?

Submitted by : Kace

Answer

A tricky one.

The train was moving towards crossing and the car was on the train in the stationary state i.e. not moving. As the car was on the train and the train was moving, both were travelling at the same speed and were at the same distance from the crossing at any given time. So no chance of collision.

Another possibility is - they were headed towards the same rail crossing, but they actually didn't cross each other. They were running parallel.

Substitute digits for the letters to make the following Division true

F I E

D I E | F A S T E D

| E D S F

I L E E

A I U I

E S T D

D I E

S N I

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 9 for the letter N, no other letter can be 9 and all other Ns in the puzzle must be 9.

Submitted by : Calon

Answer

L=0, E=1, F=2, T=3, U=4, N=5, S=6, A=7, I=8, D=9 i.e. LEFT UNSAID

It is obvious that E=1, F=2, T=3 and L=0.

Also, D should be 9 as S-D=S. Now everything is simple. I=8, A=7, N=5, S=6 and U=4.

F I E	2 8 1
-----	-----
D I E | F A S T E D	9 8 1 | 2 7 6 3 1 9
| E D S F	| 1 9 6 2
-----	-----
I L E E	8 0 1 1
A I U I	7 8 4 8
-----	-----
E S T D	1 6 3 9
D I E	9 8 1
-----	-----
S N I	6 5 8

The WWE tournament was about to begin where each participant would compete against every other participant.

At the last moment some new participants appeared and asked that they be allowed to fight in

the competition. Because of them, 26 more competitions had to be scheduled.

How many new participants were there?

Answer

There were 4 new participants.

Let's assume that there were N participants initially. Then, total number of competitions are $N*(N-1)/2$

Again, assume that there were X new participants. Then total number of competitions are $(N+X)*(N+X-1)/2$

But it is given that the difference between them is 26.

$$(N+X) * (N+X-1) / 2 - N * (N-1) / 2 = 26$$

$$X * (2*N + X - 1) = 52$$

Since, both N and X are positive integers, there are two possible answers (5, 4) and (26, 1). But it is clear that there were more than one new participants. Hence, the only possible values of (N, X) are (5, 4).

Hence, there were 4 new participants.

A cable, 16 meters in length, hangs between two pillars that are both 15 meters high. The ends of the cable are attached to the tops of the pillars. At its lowest point, the cable hangs 7 meters above the ground.

How far are the two pillars apart?

Answer

The distance between two pillars is 0 metres.

Its a tricky question.

Height of the pillars = 15 meters

Height of the lowest point of the rope = 7 meters

The vertical displacement of the rope from the horizontal connecting the tops of the pillars = $15 - 7 = 8$ meters

But the total length of the rope = 16 meters

Which means that the cable goes 8 meters straight down and 8 meters straight up. Therefore, the distance between the two pillars = 0 metres!!! The pillars stand next to each other.

You own a race track with 5 lanes. You have 25 horses, of which you wish to find out the fastest

3. In how few races can you do it?

In any race, you only get the rankings of the horses and not their timings.

Answer

Minimum 7 races required.

Divide the 25 horses into 5 groups of 5 each. Race each group. Now, have the 6th race among the winners of first 5 races. The winner of the 6th race is the fastest horse among 25.

There are 5 contenders for the 2nd and 3rd places.

- 2nd place horse in the 6th race as he lost to the fastest.
- 3rd place horse in the 6th race as he lost to the fastest and the 2nd place winner.
- 2nd and 3rd place winners in the fastest horse's first race.
- 2nd place winner in the 6th race's 2nd place winner horse's first race.

All the other horses lost to at least 3 other horses.

The 1st and 2nd place holders of the 7th race are the 2nd and 3rd fastest horses respectively.

Thus, minimum 7 races required.

Decipher this sentence.

OLTP WSFY QSP

WFYPDSZ EF,

ETHFY EF YPDSQMFD

Answer

A tough one !!!

OLTP WSFY QSP

what does not

WFYPDSZ EF,

destroy me

ETHFY EF YPDSQMFD

makes me stronger

Peter had \$300 in his savings account before he made a deposit. Paul had \$450 in his account before he made a withdrawal.

After these two transactions, Mary had noticed that they each had the same account balance. She also noticed that the amount in Peter's account increased by the same percent that the amount in Paul's decreased.

What was the percent?

Answer

Peter's account balanced increased by 20% and Paul's account balance decreased by 20%.

Assume that the percentage is X.

Now it is given that the amount in Peter's account increased by the same percent that the amount in Paul's decreased. Also, they each had the same account balance after transaction. Therefore,

$$300 + 300X/100 = 450 - 450X/100$$

$$300 + 3X = 450 - 4.5X$$

$$7.5X = 150$$

$$X = 20\%$$

Thus, Peter's account balance increased by 20% and Paul's account balance decreased by 20%. Also, Peter made a deposit of \$60 and Paul made a withdrawal of \$90.

Two friends, Alex and Bob, go to a bookshop, together with their sons Peter and Tim. All four of them buy some books; each book costs a whole amount in cents.

When they leave the bookshop, they notice that both fathers have spent 21 cents more than their respective sons. Moreover, each of them paid per book the same amount of cents as books that he bought.

The difference between the number of books of Alex and Peter is five.

Who is the father of Tim?

Answer

Alex is the father of Tim.

For each father-son couple, the father bought X books of X cents, the son bought Y books of Y cents. The difference between their expenses is 21 cents, thus $X^2 - Y^2 = 21$

Since X and Y are whole numbers (each book costs a whole amount of cents), there are two possible solutions: $(X=5, Y=2)$ or $(X=11, Y=10)$.

Because the difference between Alex and Peter is 5 books, this means that father Alex bought 5 books and son Peter 10. This means that the other son, Tim, bought 2 books, and that his father is Alex

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,

$$\begin{aligned}4 * (3120 / N) &= 26 * (N - 4) \\12480 &= 26N^2 - 104N \\26N^2 - 104N - 12480 &= 0\end{aligned}$$

Solving the quadratic equation we get N=24.

Hence, the Club originally had 24 members

In a sports contest there were m medals awarded on n successive days ($n > 1$).

1. On the first day 1 medal and $1/7$ of the remaining $m - 1$ medals were awarded.
2. On the second day 2 medals and $1/7$ of the now remaining medals was awarded; and so on.
3. 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

Tom and Jerry and the boys in the bar were exchanging old war stories.

Tom offered one about how his grandfather led a battalion against a German division during World War I. Through brilliant maneuvers, he defeated them and captured valuable territory. After the battle he was awarded a medal that was inscribed with:

"For Bravery, Daring and Leadership - World War I.

From the Men of Battalion 8."

Jerry looked at Tom and said, "You really don't expect anyone to believe that yarn, do you?"

What's wrong with the story?

Answer

World War I wasn't called "World War I" until World War II.

You have just built a house. However, you may only take certain items into the house. You can take doors, but you aren't allowed any windows. You can't have, but you are allowed coffee. A book is okay, but no paper. Finally, you can take a puppy or kitten, but you can't take a dog or cat.

Give one more thing that you can/can't take, and explain why.

Submitted by : J W

Answer

Anything with double letters in spelling is allowed and without double letters is not allowed.

If you look at the spelling of the names of the items that are allowed in the house, you will notice that they all have double letters i.e. DOOR, BOOK, PUPPY, KITTEN

So you can take items like Coffee, Balloon, Pillow

A card contains following three sentences:

- a. THIS SENTENCE CONTAINS FIVE WORDS.
- b. THIS SENTENCE CONTAINS TWO VERBS.
- c. EXACTLY ONE SENTENCE ON THIS CARD IS TRUE.

Is sentence C true or false?

Answer

It's a paradox.

You can't say it true or false, as your answer will contradict itself.

SLIDE

- DEAN

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.

What is the next number in the given series?

10^3 , 10^9 , 10^{27} , 10^2 , 0, 4, 8, 3, ?

Note that 10^3 means 10 raised to the power of 3 i.e. 1000.

Answer**A thought one !!!****The next number in the series is 5.**

The pattern is - the series of the lowest numbers containing letter of the English alphabet starting from "A".

10^3 = one thous**A**nd

10^9 = one **B**illion

10^{27} = one o**C**tillion

10^2 = one hun**D**re**D**

0 = z**E**ro

4 = **F**our

8 = ei**G**ht

3 = t**H**ree

5 = fl**v**e

"One Thousand" is the lowest number containing letter "A", "One Billion" is the lowest number containing letter "B", and so on...

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 :

1. **24** (10, 8, 6)
2. **30** (13, 12, 5)
3. **36** (17, 10, 9)
4. **42** (20, 15, 7)
5. **60** (29, 25, 6)

B, J and P are related to each other.

1. Among the three are B's legal spouse, J's sibling and P's sister-in-law.
2. 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:

1. If B's legal spouse is J, then J's sibling must be P and P's sister-in-law must be B.
2. 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	J's sibling	P's sister-in-law
	(male)	(male)	(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			

What is the next number in the given series?

0, 01, 01011, 0101101011011, ?

Answer

0101101011011010110101101101011011

The pattern is - each number is formed from the previous number by substituting '01' for '0' and '011' for '1' simultaneously at each occurrence

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?

Submitted by : Alex Crosse

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 M products

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

Of the following numbers, which is the odd one out?

43, 26, 50, 37, 17, 82

Submitted by : Susan Simmons

Answer

The odd one is 43.

The pattern is $N^2 + 1$ i.e. numbers are one greater than the perfect square of an integer

Find sum of digits of D.

Let
 $A = 40001999$

B = sum of digits of A
C = sum of digits of B
D = sum of digits of C

(HINT : $A = B = C = D \pmod{9}$)

Answer

The sum of the digits of D is 1.

Let E = sum of digits of D.

It follows from the hint that $A = E \pmod{9}$

Consider,

$$A = 1999^{1999}$$

$$< 2000^{2000}$$

i.e. E is a single digit number.

Also,

$$1999 \equiv 1 \pmod{9}$$

$$\text{so } 1999^{1999} \equiv 1 \pmod{9}$$

Therefore we conclude that $E=1$.

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 miles at the speed of 50 miles per hour.

So the time taken to travel 10 miles is

$$= (60 * 10) / 50$$

$$= 12 \text{ minutes}$$

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

$$= (60 * 10) / 8$$

$$= 75 \text{ miles per hour}$$

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.

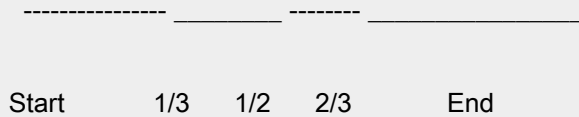
Halfway through the trip he wakes up as the bus bounces over some bad potholes. When he finally falls asleep again, the bus still has half the distance to go that it has already travelled. Fortunately, Mr. Wagle wakes up at the end of his trip.

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 shown below:



----- 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 still had twice as far to go as it had already gone, that marks the first third of his trip.

He woke 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

was sitting around with my friend Ramlal and his grandfather last week, and the topic of birthday surprises came up.

Ramlal mentioned that one of the greatest surprises that he has had involved his grandfather, who happens to have had the same birthday that Ramlal has.

One year the family was celebrating this double birthday, and during the event Ramlal proudly mentioned to his grandfather that not only he had just turned as old as the last two digits of the year he was born in, but he was also a prime number of years old. Also, each of the two digits making up his age was also a prime.

Grandfather thought for a second, turned to him, and said that the same thing had just happened to him!

What year did this occur, and how old had Ramlal and his grandfather just turned?

Answer

Ramlal is 23 years old (1923 born), his grandfather is 73 years old (1873 born) and all this occurred in 1946.

It's clear that Ramlal had to have been born in the 1900s, and his grandfather in the 1800s.

If Ramlal was born in $(1900 + X)$ and his grandfather in $(1800 + Y)$, then
 $1900 + 2X = 1800 + 2Y$ (the year this happened)
 $Y = X + 50$

Now, we need to find a pair of prime numbers, less than 100 and having difference of 50. There are 6 such $(X : Y)$ pairs: $(3 : 53)$, $(11 : 61)$, $(17 : 67)$, $(23 : 73)$, $(29 : 79)$, $(47 : 97)$

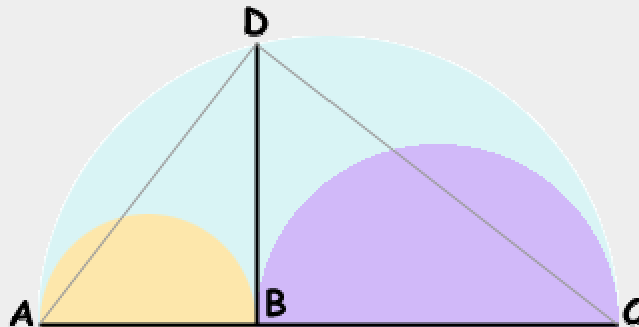
But it is given that Ramlal's age is two digits i.e. X is greater than 9. Also, each of the two digits making up their age are also a prime. It follows the only possible pair is $(23, 73)$.

Thus, Ramlal is 23 years old (1923 born), his grandfather is 73 years old (1873 born) and all this occurred in 1946

A, B and C are three points on a straight line, not necessarily equidistant with B being between A and C. Three semicircles are drawn on the same side of the line with AB, BC and AC as the diameters. BD is perpendicular to the line ABC, and D lies on the semicircle AC.

If the funny shaped diagram between the three semicircles has an area of 1000 square cms, find the length of BD.

Answer



The length of BD is 35.68 cms

There are 3 right-angled triangles - ABD, CBD and ADC.

From ABD, $AB^2 + BD^2 = AD^2$ ----- I
From CBD, $CB^2 + BD^2 = CD^2$ ----- II

$$AB^2 + BC^2 + 2*BD^2 = AD^2 + CD^2 \text{ ----- IV}$$

FROM III and IV

$$AB^2 + BC^2 + 2*BD^2 = AC^2$$

$$AB^2 + BC^2 + 2*BD^2 = (AB+CB)^2$$

$$2*BD^2 = 2*AB*CB$$

$$BD^2 = AB*CB$$

$$BD = \text{SQRT}(AB*CB)$$

Given that funny shaped diagram between three semicircles has an area of 1000 square cms.

$$[PI/2 * (AC/2)^2] - [PI/2 * (AB/2)^2] - [PI/2 * (BC/2)^2] = 1000$$

$$PI/8 * [AC^2 - AB^2 - BC^2] = 1000$$

$$PI * [(AB+BC)^2 - AB^2 - BC^2] = 8000$$

$$PI * [2*AB*BC] = 8000$$

$$AB * BC = 4000/PI$$

$$\text{Hence } BD = \text{SQRT}(4000/PI) = 35.68 \text{ cms}$$

$$\text{where } PI = 3.141592654$$

Hence, the length of BD is 35.68 cms.

On a barnyard, there was a chicken, a turkey and a crow.

The chicken could fly at 5 mph but, as chickens are poor flyers, he gets tired very soon. After only 2 minutes of flying, he had to walk at 1 mph for next three minutes before he could fly again.

The turkey could fly continuously at 4 mph, but he had a habit of swerving back and forth. So for every 3 feet he flies, he actually only travels 2 feet.

The crow could fly straight, at 2 mph.

Which animal would win a one mile race?

Answer

Chicken would win the one-mile race.

The final results will be:

1. Chicken - 21.6 minutes (21 minutes 36 seconds)
2. Turkey - 22.5 minutes (22 minutes 30 seconds)
3. Crow - 30 minutes

The three of us made some bets.

First, Waldo won from Molly as much as Waldo had originally. Next, Molly won from Spike as much as Molly then had left. Finally, Spike won from Waldo as much as Spike then had left. We ended up having equal amounts of money.

I started with 50 cents. Who am I?

Answer

I am Molly.

Let Waldo start with W , Molly with M , and Spike with S . Following the above account we get the following progression of money:

$$\begin{aligned}W &= 2*W, M = M-W \\M &= 2*(M-W), S = S-(M-W) = S+W-M \\S &= 2*(S+W-M), W = 2*W-(S+W-M) = W+M-S\end{aligned}$$

And so Waldo finished with $W+M-S$, Molly with $2*(M-W)$, and Spike with $2*(S+W-M)$.

Since these must all be equal, we have three equations and three unknowns, so solve; this gives us that $4*M = 5*S$ and $3*S = 4*W$.

Now, if $S = 1/2$ this implies that $W = 3/8 = 37.5$ cents, an impossible amount of money to start with.

If $W = 1/2$ this implies that $S = 2/3$, again an impossible amount to start with.

Finally, if $M = 1/2$ this implies that $S = 2/5 = 40$ cents, $W = 3/10 = 30$ cents, which works.

It follows that I am Molly.

A group of fewer than 10 girls found a number of gold-coins which they were able to divide equally among them.

After this division had been done, Lalita - one of the girls, suggested that it would be more equitable to divide the gold-coins by families rather than by individuals. Among the them, there were two groups with two sisters, of course Lalita was not in either group. The rest of the girls were unrelated to each other. A re-division by families would have meant that the gold-coins per family were 5 more than the gold-coins per girl.

The girls argued among themselves over this way of dividing the gold-coins. Before a final

decision is made, Ash - one of the girls, decided that she did not want any gold-coins. Her share was equally divided (without breaking/cutting any gold-coin) among the other girls.

Finally, Lalita decided to withdraw her suggestion of dividing the gold-coins by families.

How many girls were there and how many gold-coins did each girl end up with?

Answer

There were total 6 girls. Each end up with 12 gold-coins.

The number of gold-coins is evenly divisible by the number of girls as well as the number of families.

Let's assume that N is the number of gold-coins each girl received initially and G is the total number of girls.

Then, total number of gold-coins = NG

If the gold-coins had been divided by families rather than by individuals, the number of recipients would be $(G - 2)$ and each share would be $(N + 5)$.

Again, total number of gold-coins = $(N + 5)(G - 2)$

But, the total number of the gold-coins is the same.

$$NG = (N + 5)(G - 2)$$

$$NG = NG - 2N + 5G - 10$$

$$2N = 5G - 10$$

$$N = (5/2)G - 5$$

Now, N and G are the positive integers and also total number of gold-coins must be divisible by G , $(G-1)$ and $(G-2)$. This is because initially there were G girls; then since it was divided family wise, the total number of units, the coins were to be divided would be $(G-2)$ (as two groups had two sisters, so two girls got combined as one group, one per group); and after Ash backed out, there were $(G-1)$ girls.

Now trying different EVEN values for G , starting with 2; there were total 6 girls and 60 gold-coins. The gold-coins are divided among 5 girls and hence each girl ends up with 12 gold-coins

What are next two numbers in the given series?

2, 12, 360, 75600, ?, ?

Answer

The next two numbers are 174636000 and 5244319080000.

The pattern is as follow:

$$2 = 2^1$$

$$12 = 2^2 * 3^1$$

$$360 = 2^3 * 3^2 * 5^1$$

$$75600 = 2^4 * 3^3 * 5^2 * 7^1$$

$$174636000 = 2^5 * 3^4 * 5^3 * 7^2 * 11^1$$

$$5244319080000 = 2^6 * 3^5 * 5^4 * 7^3 * 11^2 * 13^1$$

A tough one !!!

- 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

L(m) - H(f) ----- M(f) - A(m)

|

|

E(x) - I(y)	D(x) B(y) - C(x)

J(y) K(y)	F(y) G(x)

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.

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

	I
A G R E E	
+	I T S

T O U G H	

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 S, no other letter can be 3 and all other S in the puzzle must be 3.

Answer

I=7, A=2, G=9, R=4, E=5, T=3, S=6, O=0, H=8

It is obvious that $T = A + 1$. Also, $G = 9$, $O = 0$ and $R + I > 10$. Hence, $T > 1$

There must be a carry from the units. Hence $E + T = 8$. So (E, T) can be (6, 2), (5, 3), (3, 5), (2, 6) or (1, 7).

Now, use trial-n-error and solve it.

I	7
A G R E E	2 9 4 5 5
+ I T S	+ 7 3 6
-----	-----
T O U G H	3 0 1 9 8

We - Amar, Akbar and Anthony - each have some children.

1. Amar has at least one girl and twice as many boys as girls.
2. Akbar has at least one girl and three times as many boys as girls.
3. Anthony has at least one girl and three more boys than girls.
4. When I tell you the number of children we have altogether - a number less than 25 - you will know how many children I have, but not how many children each of others has."

Who is the speaker and how many children he have?

Answer

Amar is the speaker and he have 6 children.

Find out possible number of children each can have and then use trial-n-error.

From (1), Amar has at least 3 children and any number from -
3, 6, 9, 12, 15, 18,

From (2), Akbar has at least 4 children and any number from -
4, 8, 12, 16, 20, 24,

From (3), Anthony has at least 5 children and any number from -

- The total number of children can not be 12, 14, 15, 16 or 17 as there is just a one way to get that sum by adding up one number from each sequence. Hence, we will know how many children they individually have. Thus, contradicts the statement (4).
- The total number of children can not be 18, 20, 21, 22, 23 or 24 as there are multiple ways to get that sum. Hence, we won't know how many children, at least one of them have. Again contradicting the statement (4).

Thus, the total number of children must be 19 and there are two possible cases:

1> Amar-6, Akbar-4, Anthony-9

2> Amar-6, Akbar-8, Anthony-5

In both the cases, we know that Amar have 6 children and hence Amar is the speaker

What are the next two numbers in the given series?

2, 11, 75, 700, 8476, ?, ?

Answer

The next two numbers in the series are 126125 and 2223277.

The pattern is -

$$2 = 2^1$$

$$11 = 2^1 + 3^2$$

$$75 = 2^1 + 3^2 + 4^3$$

$$700 = 2^1 + 3^2 + 4^3 + 5^4$$

$$8476 = 2^1 + 3^2 + 4^3 + 5^4 + 6^5$$

$$126125 = 2^1 + 3^2 + 4^3 + 5^4 + 6^5 + 7^6$$

$$2223277 = 2^1 + 3^2 + 4^3 + 5^4 + 6^5 + 7^6 + 8^7$$

$$45269998 = 2^1 + 3^2 + 4^3 + 5^4 + 6^5 + 7^6 + 8^7 + 9^8$$

Place the numbers from 1 to 15 in the blocks below, without repeating any of them, such a way that the sum of the numbers in any two adjacent blocks is always a perfect square.

□ □ □ □ □ □ □ □ □ □ □ □ □ □ □

A whole number is said to be a perfect square if it is equal to some whole number multiplied by itself. e.g. 36 ($6 \cdot 6$), 121 ($11 \cdot 11$)

Answer

[9] [7] [2] [14] [11] [5] [4] [12] [13] [3] [6] [10] [15] [1] [8]

Find out all the possible pairs of the numbers from 1 to 15 that sum up to a perfect square.

1: (1,3), (1,8), (1,15)

2: (2,7), (2,14)

3: (3,6), (3,13)

4: (4,5), (4,12)

5: (5,4), (5,11)

6: (6,3), (6,10)

7: (7,2), (7,9)

8: (8,1)

9: (9,7)

10: (10,6), (10,15)

11: (11,5), (11,14)

12: (12,4), (12,13)

13: (13,3), (13,12)

14: (14,2), (14,11)

15: (15,1), (15,10)

Note that there are 2 numbers that with just a one pair i.e. (8,1) and (9,7). Thus, 8 and 9 must be at the end.

[9] [7] [] [] [] [] [] [] [] [] [1] [8]

Now, 7 have only one other pair i.e. (7,2)

[9] [7] [2] [] [] [] [] [] [] [] [1] [8]

Similarly, there is only one other pair of 2 i.e. (2,14)

[9] [7] [2] [14] [] [] [] [] [] [] [1] [8]

Following the same procedure, the final solution is

[9] [7] [2] [14] [11] [5] [4] [12] [13] [3] [6] [10] [15] [1] [8]

Nicole and Sharon, together have more than 10 but fewer than 30 bodyguards. One day, one of the bodyguards, Cruz, decided to leave Nicole and join Sharon. Now both the females had the same number of bodyguards.

Eventually, Cruz rejoined Nicole. Also, Jim decided to leave Sharon and join Nicole. Now, both the females had a prime number of bodyguards.

How many bodyguards did each have now?

Answer

.....

11.

Hence, now Nicole have 11 bodyguards and Sharon have 7 bodyguards.

Laloo, Baloo and Naloo were at the Health Club on the same day this month.

1. They all joined the health club last month.
2. One of them goes every 2 days, another one goes every 3 days and the third one goes every 7 days.
3. Laloo went to the health club for the first time this month on a Monday, Baloo went to the health club for the first time this month on a Wednesday and Naloo went to the health club for the first time this month on a Friday.
4. Exactly one of them was at the health club on the first day of this month.

On which day of this month did Laloo, Baloo and Naloo meet?

Note that here "this month" means any one month in general.

Answer

They met on the 27th of this month.

Find out individual dates on which they were at the club.

From (2), 2-day man went to the health club for the first time this month on the 1st or 2nd. Also, 3-day man went to the health club for the first time this month on the 1st, 2nd or 3rd. There are two possible cases:

Case I :

Laloo went on Monday, the 1st and every two days thereafter. Baloo went on Wednesday, the 3rd and every three days thereafter. Naloo went on Friday, the 5th and every seven days thereafter. Then,

Laloo's dates - 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31

Baloo's dates - 3, 6, 9, 12, 15, 18, 21, 24, 27, 30

Naloo's dates - 5, 12, 19, 26

Case II :

Baloo went on Wednesday, the 1st and every two days thereafter. Naloo went on Friday, the 3rd and every three days thereafter. Laloo went on Monday, the 6th and every seven days thereafter. Then,

Baloo's dates - 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31

Naloo's dates - 3, 6, 9, 12, 15, 18, 21, 24, 27, 30

Laloo's dates - 6, 13, 20, 27

It is given that they were at the club on the same day this month, then Case I is not possible. And from Case II, they met on the 27th of this month.

A B C

D

E F G

H

I

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.

A barber in a certain small town shaves all the men who do not shave themselves, but never shaves any who do shave themselves.

Does the barber shave himself? Note that the barber is a man.

Answer

It's a paradox.

You can't say it true or false, as your answer will contradict itself.

was sitting around with my friend Dave. Matt and James recently happened to have two tickets

to a new movie in my pocket that I had just purchased.

I mentioned that there were two four-digit numbers on the tickets and that the sum of all 8 digits was 25.

Dave asked if any digit appeared more out of the 8, which I answered.

Then, Marty asked if the sum of the digits of either ticket was equal to 13, which I answered too.

Much to my surprise James immediately told me what the two numbers were!

What were they?

Answer

Ticket numbers were 1299 and 1300.

The first thing James realized was that the tickets were consecutively numbered.

There are 4 possible cases:

1. ABCD and ABC(D+1)
2. ABC9 and AB(C+1)0
3. AB99 and A(B+1)00
4. A999 and (A+1)000

If the tickets were numbered ABCD and ABC(D+1) and my answer to Marty's question had been "YES", the only conclusion James could have reached would have been that $A+B+C+D=12$, and regardless of my answer to Dave's question there would not have been a unique solution. So my answer to Marty's question must have been "NO". It follows that the tickets could not have been numbered in this manner.

If the numbers were ABC9 and AB(C+1)0, we would have $2A+2B+2C+10=25$, and so $2(A+B+C)=15$, which is impossible.

If the numbers were AB99 and A(B+1)00, we would have $2A+2B+19=25$ or $A+B=3$, leading to the four possibilities (0399 and 0400), (1299 and 1300), (2199 and 2200), (3099 and 3100). Of these, three of them would have had me answer "YES" to Dave's question (if any digit appeared more?), and only the pair (1299 and 1300) would have had me answer "NO". It follows that these were my ticket numbers i.e. (1299 and 1300)

Similarly, if the numbers were A999 and (A+1)000, we would have $2A + 28 = 25$, which is again impossible.

Thus, my ticket numbers were 1299 and 1300.

Examine the following sequence of numbers.

1
11
21
1011

111221
312211
13112221
1113213211
31131211131221

What are the next two numbers in the given series?

Answer

The next two numbers are 13211311123113112211 and 11131221133112132113212221.

Each number is a detailed description of the previous number.

Second number describes first number as one one i.e. 11

Third number describes second number as two ones i.e. 21

Fourth number describes third number as one two, one one i.e. 1211

Fifth number describes fourth number as one one, one two, two ones i.e. 111221

Sixth number describes fifth number as three ones, two twos, one one i.e. 312211

Following the same, the next two numbers are 13211311123113112211 and 11131221133112132113212221

Five friends went for tracking this monsoon, but not together. They climbed different mountains.

1. Sanjiv climbed higher than 1000 meters, but not on Panchgani.
2. Sanjay climbed higher than both Subhash and the one who climbed Murud.
3. Lohgadh is shorter than the mountain climbed by Subhash, but higher than the one climbed by Sujay.
4. The tallest mountain was not climbed by Suvdeep.
5. Murud is not the tallest but taller than Panchgani.
6. The mountain which is 2500 meters tall is not Tikona or Panchgani.
7. Visapur is taller than Panchgani, which is taller than the mountains climbed by Sanjiv and Sujay.

Can you figure out who climbed which mountain?

Answer

From (5) & (7), Visapur is the tallest, Murud is the second tallest and Panchgani is the third tallest. Also, the shortest two are climbed by Sanjiv and Sujay.

From (3), Tikona is the shortest and climbed by Sujay.

Thus, the mountains from the tallest to the shortest are Visapur, Murud, Panchgani,

Thus, the mountains from the tallest to the shortest are Visapur - Murud - Panchgani - Lohgadh - Tikona.

Now draw a table with person names and mountains (as shown below), and discard the impossible combinations.

There is only one mountain taller than Murud. From (2), Sanjay climbed Visapur.

From (5), Sanjiv climbed Lohgadh. Solving further, Suvdeep climbed Murud and Subhash climbed Panchgani.

	Sanjiv	Sanjay	Subhash	Sujay	Suvdeep
Visapur	X		X	X	X
Murud	X	X	X	X	
Panchgani	X	X		X	X
Lohgadh		X	X	X	X
Tikona	X	X	X		X

Thus, the answer is as follows:

1. Visapur - Sanjay
2. Murud - Suvdeep
3. Panchgani - Subhash
4. Lohgadh - Sanjiv
5. Tikona - Sujay

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

O N E

N I N E

T W E N T Y

+ F I F T Y

E I G H T Y

NOTE: This is a puzzle to be solved by logic. All the letters must be replaced by digits.

between digits and letters. e.g. if you substitute 3 for the letter Y, no other letter can be 3 and all other Y in the puzzle must be 3.

Answer

G=0, H=1, Y=2, T=3, E=4, I=5, W=6, F=7, N=8, O=9

It is obvious that $E = T + 1$

Also, $2E + 2Y = Y$ i.e. $2E + Y$ must be either 10 or 20 and Y must be an even number. Thus, possible values of (E, Y) pair are (4, 2) (9, 2) (3, 4) (8, 4) (2, 6) (7, 6) (1, 8) (6, 8)

Now, taking each pair individually, only one pair makes the addition true.

O N E	9 8 4
N I N E	8 5 8 4
T W E N T Y	3 6 4 8 3 2
+ F I F T Y	+ 7 5 7 3 2
-----	-----
E I G H T Y	4 5 0 1 3 2

What are the next two numbers in the given series?

0, 6, 24, 60, 120, 210, ?, ?

Answer

The next two numbers are 336 and 504.

The pattern is $(N^3 - N)$, where N is the position.

First Number = $1^3 - 1 = 0$

Second Number = $2^3 - 2 = 6$

Third Number = $3^3 - 3 = 24$

Fourth Number = $4^3 - 4 = 60$

Fifth Number = $5^3 - 5 = 120$

Sixth Number = $6^3 - 6 = 210$

Seventh Number = $7^3 - 7 = 336$

Eighth Number = $8^3 - 8 = 504$

Thus, the next two numbers are 336 and 504.

Note the interesting pattern here:

0 6 24 60 120 210

6 18 36 60 90

12 18 24 30

6 6 6

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

T H A T S

T H E

+ T H E O R Y

A N Y W A Y

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 Y, no other letter can be 3 and all other Y in the puzzle must be 3.

Answer

T=8, H=6, A=9, S=7, E=3, O=2, R=4, Y=1, N=5, W=0

Its tough one and requires lots of trial-n-error. But it can be reduce from the following deductions:

$A = T + 1$, $T < 9$ and $A > 1$

$S + E = 10$

$H + R = 10$

one of (O, Y, N, W) is 0

$H > 1$

There are 8 possible values for (A,T) - (2,3), (3,4), (4,5), (5,6), (6,7), (7,8), (8,9)

Also, there are 4 possible value pairs for (S,E) and (H,R) - (1,9), (2,8), (3,7), (4,6), but not necessarily in the same order.

Now, taking possible values of (A,T) one at a time and evaluating corresponding (S,E) and (H,R) values, we can find the answer.

T H A T S	8 6 9 8 7
T H E	8 6 3
+ T H E O R Y	+ 8 6 3 2 4 1
-----	-----
A N Y W A Y	9 5 1 0 9 1

Elizabeth is engaged.

- Her fiancé is either Arthur, Barry, Colin or Derek.
- Each of the four men and Elizabeth either always tells the truth or always lies.
- Arthur says: "Exactly one of us four men always tells the truth."
- Barry says: "Exactly one of us four men always tells the lies."
- Colin says: "Arthur or Barry is Elizabeth's fiancé."
- Elizabeth says: "My fiancé and I either both always tell truth or both always lie."

Who is Elizabeth's fiancé?

Answer

Barry is Elizabeth's fiancé.

Analyze the statements made by Colin and Elizabeth first

Analyse the statements made by Colin and Elizabeth first.

From (6), if Elizabeth always tells the truth, then her fiancé always tells the truth and if Elizabeth always lies, then her fiancé always tells the truth. Hence, Elizabeth's fiancé always tells the truth.

Let's assume that statement made by Colin (5) is false. Then Colin lied and Derek is the truth-telling fiancé. But then statement made by Arthur can not be true (if true, then there are 2 truth-tellers which contradicts itself). And it can not be false either (if false, then there are at least 2 truth-tellers, which makes Barry's statement false and hence there is just a one truth-teller i.e. Derek, again contradiction!!!). Hence statement made by Arthur contradicts itself. So the statement made by Colin is true i.e. Arthur or Barry is Elizabeth's fiancé.

As statement made by Colin is true, the statement made by Arthur is false. Then because Elizabeth's fiancé always tells the truth, Barry is Elizabeth's fiancé. Then the statement made by Barry is true and thus Derek always tells the truth.

Thus, Barry is Elizabeth's fiancé.

8 Queens Problem

In how many ways can you arrange 8 queens on a standard chessboard in such a way that none of them is attacking any other?

Answer

There are 92 ways of placing the 8 queens on the board. Some of such positions are :

1. A1, B5, C8, D6, E3, F7, G2, H4
2. A1, B6, C8, D3, E7, F4, G2, H5
3. A1, B7, C4, D6, E8, F2, G5, H3
4. A1, B7, C5, D8, E2, F4, G6, H3

The easiest way to solve this problem is by writing a computer program that systematically tries all possibilities of placing the 8 queens on the board.

Substitute digits for the letters to make the following multiplication true.

N O W

x O R

N E V E R

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 9 for the letter R, no other letter can be 9 and all other R in the puzzle must be 9.

This one looks easier but you'll find it takes some working out, even given that there is no zero.

Answer

N=8, O=9, W=1, R=5, E=4, V=6

Note that $(**W) \times (*R) = (****R)$. It means that either $W=1$ or $R=0$ or $R=5$ and W is an odd number.

But it is given that there are no zero. Hence, R can not be 0.

Also, O must be 6, 7, 8 or 9.

Now using trial-n-error, we get the only answer.

$$\begin{array}{r}
 \text{N O W} \qquad \qquad 8 \ 9 \ 1 \\
 \times \quad \text{O R} \qquad \times \quad 9 \ 5 \\
 \hline
 \text{N E V E R} \qquad 8 \ 4 \ 6 \ 4 \ 5
 \end{array}$$

There are 3 possible answers with zero.

$$176 \times 70 = 12320$$

$$183 \times 80 = 14640$$

$$189 \times 85 = 16065$$

Eleven theater groups took part in a "Prithvi" festival. Every day some of the groups performed while the others watched.

When the festival was over, each one of the groups has been able to attend, at least once, the performance of each of the other groups.

What is the minimum number of days that the "Prithvi" festival lasted? Also, how many performances were there?

Note that the day on which a group perform, they do not attend any performance on that day.

Answer

The festival lasted for 6 days and total performance were 21.

Let the 11 groups be G1, G2, G3, , G11. If they performed as shown below, each group was able to perform at least once in front of every other group.

	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10	G11
Day 1	X	X	X	X							
Day 2	X				X	X	X				
Day 3		X			X			X	X		
Day 4			X			X		X		X	
Day 5				X			X		X	X	
Day 6											X

Thus, the festival lasted for 6 days and there were total 21 performances

Two men plays a game of Russian Roulette - a stunt in which one spins the cylinder of a revolver loaded with only one bullet, aims the muzzle at one's head, and pulls the trigger. They put two bullets in a revolver and pull the trigger twice.

The cylinder is spun before the first shot. But it may or may not be spun after putting in the first bullet and after taking the first shot.

Which of the following scenario have the lowest probability of survival and what is the value?

1. Spinning the cylinder after putting in the first bullet and spinning it again after the first shot.
2. Spinning the cylinder only after putting in the first bullet.
3. Spinning the cylinder only after firing the first shot.
4. Not spinning the cylinder either after putting in the first bullet or after taking the first shot.
5. The probability of survival is the same in all the cases.

Note that the revolver has 6 chambers cylinder.

Answer

Second scenario have the lowest probability of survival i.e. 40%. And the Fourth scenario have the highest probability of survival i.e. 50%.

Scenario I:

The probability of survival in first shot = $4/6 = 2/3$

Since the cylinder is spun after first shot, the probability of survival in second shot = $4/6 = 2/3$

Hence, the probability of survival in Scenario I = $2/3 * 2/3 = 4/9 = 44.44\%$

Scenario II:

The probability of survival in first shot = $4/6 = 2/3$

Since the cylinder is spun after first shot, the probability of survival in second shot = $3/5$

Hence, the probability of survival in Scenario II = $2/3 * 3/5 = 2/5 = 40.00\%$

Scenario III:

The probability of survival in first shot = $4/6 = 2/3$

Since the cylinder is spun after first shot, the probability of survival in second shot = $4/6 = 2/3$

Hence, the probability of survival in Scenario I = $2/3 * 2/3 = 4/9 = 44.44\%$

Scenario IV:

The probability of survival in first shot = $4/6 = 2/3$

Since the cylinder is not spun after putting the first bullet, both the bullets are in consecutive chambers. The probability of survival in second shot = $3/4$

Hence, the probability of survival in Scenario I = $2/3 * 3/4 = 1/2 = 50.00\%$

Thus, Second scenario has the lowest probability of survival i.e. 40%. And Fourth scenario has the highest probability of survival i.e. 50%.

Decipher this sentence.

V Y Q K N O B X Y I Y Z O R E X V E

S V M Q A M V G H I, U D B O X G

Q G A B K G U G A N M G F G K G B.

Answer

V Y Q K N O B X Y I Y Z O R E X V E

i almost had a psychic

SVMQAMVGHI, UDB OXG

girlfriend but she

QGAB KG UGANMG FG KGB.

left me before we met.

Every Sunday, Jessica went to see her father in the city and came home on the 6:00 o'clock train. One day she told her driver, Jack, that she would be back an hour earlier and to pick her up at the station. Jack forgot and went to get her at the usual time.

When Jessica arrived and did not find Jack there, she started walking home. Jack met her on the road and took her back to the home, where they arrived 20 minutes earlier than usual.

Can you figure out how long Jessica was walking before Jack picked her up? Note that Jack always drove at the same speed.

Answer

Jessica must have been walking for 50 minutes.

Since they saved 20 minutes, they must have been 10 minutes from the station when Jack met Jessica. At that point he saved going the rest of the way to the station, which would have taken 10 minutes. (and 10 minutes for coming back to the home, hence total 20 minutes)

Since Jessica arrived an hour earlier at the station and Jack was at 10 minutes from the station, she must have been walking for 50 minutes.

A D

B G E

C F

Each of the letters above is represented by different single digit number (1 to 9). Also, $A * B * C = B * G * E = D * E * F$

Which digit does G represent?

Answer

G represents 2.

Note that no letter can be 0, 5 or 7.

Then the product for each row is a multiple of 1, 2, 3, 4, 6, 8 and 9. The smallest possible product is 72. Thus the product is a multiple of 72. But using 1, 2, 3, 4, 6, 8 and 9 only once (and in a group of three), it is not possible to get product larger than 72 three times. Hence, the product is 72.

$$A * B * C = B * G * E = D * E * F = 72$$

Note that each of A, C, D, F and G occurs only in one product whereas each of B and E occurs in two products. Also, only G can be determined with certainty, all other values are interchangeable.

Thus, the possible combinations are:

$$1 * 8 * 9 = 72$$

$$2 * 4 * 9 = 72$$

$$3 * 4 * 6 = 72$$

Because 4 and 9 are used twice, they should be B and E. Thus, one of the possible arrangement is

$$3 \quad 1$$

$$4 \quad 2 \quad 9$$

$$6 \quad 8$$

where 3 and 6 are interchangeable. Also, 1 and 8 are interchangeable.

Hence, G represents 2.

Ann, Bob, Cab and Ida are guards in a hospital.

1. Each of Ann, Bob and Cab stands guard exactly four days every week.
2. Exactly two persons stand guard together everyday.

3. No person stand guard three days in a row.
4. The partial listing is as shown:
5. SUN MON TUE WED THU FRI SAT
- 6.

Ann Cab Ida Ann Bob Cab Ida

Bob ? ? ? ? ? ?

Who does not stand guard with Ida?

Answer**Ann does not stand guard with Ida.**

From (1) and (2), Ida stands guard on only two days i.e. Tuesdays and Saturdays. Thus, Ida is not one of the unknown guards.

Consider Wednesday - either Bob or Cab stands guard with Ann.

Case I : On Wednesday Bob stands guard with Ann.

It implies that Ann stands guard with Cab on Friday. Then Cab stands guard with Bob on Thursday and Bob stands guard with Ida on Saturday. Then Ann stands guard with Cab on Monday and Cab stands guard with Ida on Tuesday.

SUN	MON	TUE	WED	THU	FRI	SAT
-----	-----	-----	-----	-----	-----	-----

Ann	Cab	Ida	Ann	Bob	Cab	Ida
-----	-----	-----	-----	-----	-----	-----

Bob	Ann	Cab	Bob	Cab	Ann	Bob
-----	-----	-----	-----	-----	-----	-----

Note that Bob and Cab stand guard with Ida where as Ann does not.

Case II : On Wednesday Cab stands guard with Ann.

It implies that Ann stands guard with Bob on Thursday. Then Bob stands guard with Cab on Friday and with Ida on Tuesday. Then Ann stands guard with Cab on Monday and Cab stands guard with Ida on Saturday.

SUN	MON	TUE	WED	THU	FRI	SAT
-----	-----	-----	-----	-----	-----	-----

Ann	Cab	Ida	Ann	Bob	Cab	Ida
-----	-----	-----	-----	-----	-----	-----

Bob	Ann	Bob	Cab	Ann	Bob	Cab
-----	-----	-----	-----	-----	-----	-----

Note that Bob and Cab stand guard with Ida where as Ann does not.

Thus, Ann does not stand guard with Ida.

Multiply by 7 the number of 8's immediately followed by 3, but not by 5, in the number below:

381654783298514285838385737983256941837408326

Answer

This is simple one

This is simple one.

Simply count the occurrence of 83
There are 6 (six) 8's followed by 3
Now multiply it by 7

Hence the answer is 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.**

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. $\frac{1}{5}$ th of the remaining to the elder son. Now give one coin to the manager and $\frac{1}{5}$ th 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

What can run but never walks,
Has a mouth but never talks,
Has a head but never weeps,
Has a bed but never sleeps?

Answer

A River

It runs, never walks. It has a mouth where it opens into a bay or ocean, but never talks. It has a head - a source from where it emerges, but never weeps. It has a bed - the land over which it flows, but never sleeps

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?

Note: Take any square as a starting position for the Rook.

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.

He got it in the woods and brought it home in his hand because he couldn't find it. The more he looked for it, the more he felt it. When he finally found it, he threw it away.

What it is?

Answer**A Thorn**

He got a thorn in his hand when he went to the forest. But he couldn't find it, hence he came home with it in his hand. The more he looked for it, the more pain he felt. Finally, when he found it, obviously he threw it away

Can you arrange nine buttons to make ten rows, three buttons in each row?

Submitted by : Nathan Frankl

Answer

Nine buttons can be arranged to make 10 rows of 3 buttons each.

@ @ @

@ @ @

@ @ @

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?

Submitted by : Alex Crosse

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

- 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 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.

Submitted by : Pingu

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.

My uncle married a woman about three years ago, but I've never had an aunt.

How is that possible?

Submitted by : AJ

Answer

There are multiple possible answers to it.

Hence, now your uncle is your hubby and you donot have any aunt as there is no uncle. There is an assumption that you do not have any other uncle.

Second possible answer is : Your dad is dead and your mom married to your only uncle. Your uncle is now your step-father and his wife is your mom. Hence, there is no aunt.

There is a cup with water and ice in it.

Will the water level change if the ice melts? Justify your answer.

Submitted by : Santa Clause

Answer

The water level will not change.

The ice displaces water equal to its mass and when ice melts, its mass remains the same.

However, if the ice is not floating in the water - either supercooled or not being allowed to float by pressure or not enough water to float - the level may change.