

A Short Introduction

This book presents 250 of the greatest riddles and puzzles we know. Some of them are thousands of years old; others were created especially for this book, and have never appeared in print before.

Our aim was create a compendium of riddles and puzzles that would bring enjoyment to people of all ages. As such, we have tried to include as wide a variety of puzzles as possible. There are classical logic puzzles, lateral thinking puzzles, "who am I?" riddles, mathematical brain teasers, word ladders, ditloids, and a large selection of illustrated pen and paper, coins, cups, and toothpicks puzzles. This is the first time a collection of such breadth has been compiled and formatted especially for Kindle devices. The puzzles have been carefully organized into 25 chapters, and each question is hyperlinked to its solution, to provide utmost ease of navigation.

We hope you will enjoy unraveling these riddles as much as we enjoyed creating and editing them. We wish you good luck, and the strength to resist turning to the solution too soon,

Peter Keyne and Rudolph Amsel
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## How to use this book

This book has been created especially for Kindle, and we have tried to make it as easily navigable as possible. You can view the solution to each puzzle by clicking on the question number. You can return to the question by pressing the "back" key on your kindle. Clicking on the chapter title will always take you back to the contents page.

## Other Titles by Elsinore Books:



The Little Book of Capital Cities
Guess the Initials Quiz
The Best of Poetry: Thoughts that Breathe

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## Round 1: Old Chestnuts Warmed Up

These ten introductory riddles are likely to be familiar to most puzzle lovers. Some require straightforward logical reasoning; others depend on word-play and are best approached from a different angle. Together they should serve as a good warm-up for what follows. Good luck!


## 1. Two Fathers and Two Sons

Two fathers and their two sons go fishing together. They each catch one fish to take home with them. They do not lose any fish, and yet when they arrive at home they only have three fish. How can this be?

## 2. A Curious Object

The man who makes it doesn't use it; the man who buys it doesn't need it; the man who uses it doesn't know it. What is it?

## 3. A Companion Riddle

Whoever makes it, tells it not; whoever takes it, knows it not; and whoever knows it, wants it not. What is it?

## 4. Legal loophole

Why can't a man living in California be legally buried in New York (even if it's left as an instruction in his will)?

## 5.The Farmer's Challenge

A farmer went to market and purchased a fox, a goose, and a bag of corn (for reasons that must forever remain his own). On his way home, he needed to cross a river, but the boat he found there was so tiny, it could only carry the farmer himself and a single one of his new possessions. Naturally he couldn't leave the fox alone with the goose; or the goose alone with the bag of corn. The only things he could safely leave together were the fox and the bag of corn, for a fox will never be tempted to eat corn, and only very rarely will a bag of corn be tempted to eat a fox.

The farmer's challenge was this: how could he ferry all of his possessions across the river, without harm coming to any of them?


## 6. The Riddle of the Sphinx

What walks on four legs in the morning; three legs at midday; and two legs in the evening?

## 7. Medical Mystery

A boy and his father are involved in a traffic accident, and the father dies. The boy is rushed to hospital, suffering from injuries. The Head Surgeon is called to operate, but on seeing the boy, immediately declares: "I cannot operate. This boy is my son." How is this possible?

## 8. The Labyrinth

Identical twins - A liar and a truth teller - stand at a fork of the path in a labyrinth. One path leads out of the labyrinth, but the other leads further into it, and following it would be illadvised to say the least. You do not know which of the twins is the liar and which is the truth teller, but you know that they both know the way out of the labyrinth and are aware of the other's behavior.

You may ask only one question to only one of the twins. What should you ask to escape the labyrinth?

## 9. On Friday

A man rides into an inn on Friday, stays for three nights and rides out again on Saturday. How can this be?

## 10. A Journey to St. Ives

As I was going to St. Ives,
I met a man with seven wives.
Each wife had seven sacks.
Each sack had seven cats.

Each cat had seven kits.
Kits, cats, sacks, and wives;
How many were going to St. Ives?

## Answers: Round 1

1. Two fathers and two sons refers to just three people - A grandfather, his son, and his grandson. Two of the three are fathers; and two of the three are sons.
2. A Coffin
3. Counterfeit money
4. Because he's alive.
5. The farmer should take the following seven steps:
6. Take the goose across
7. Return
8. Take either the fox or the corn across and...
9. Return with the goose
10. Take either the fox or the corn across
11. Return
12. Take the goose across
13. Man; who crawls on all fours as an infant; walks on two feet as an adult; and uses a walking stick in old age.

This is the most famous riddle from Greek mythology. According to most sources, the riddle was posed by a sphinx guarding the gates to the Greek city of Thebes. When Oedipus solved it, the sphinx devoured herself, and the city was liberated.
7. The Head Surgeon is the boy's mother.
8. Ask either of the twins: "Which path would your twin say leads to the exit?" Then take the opposite path. It does not matter which twin you ask - they will point in the same direction:

The truth teller knows his twin would point to the wrong path and as he himself is truthful, he points to the wrong path.

The liar knows his twin would point to the right path, but as he lies about everything, he lies about this too, and points to the wrong path.

They are both guaranteed to point to the wrong path in answer to this question; so you will be guaranteed to find the exit by taking the other path.

## An alternative answer:

Ask either of the twins: "If I were to ask you which path led to the exit, what would you say?" In answer to this question, both of the twins will point to the correct path.
9. Friday is the name of the man's horse. He arrived at the inn on Wednesday, stayed Wednesday, Thursday, and Friday night, and left on Saturday.
10. One - At least this is the most satisfying answer; and based on the assumption that the people the narrator encounters are heading in the opposite direction. However, there is enough ambiguity in the wording of this riddle to yield several other answers, including: 2802 if the narrator overtook the group on the way to St. Ives; and $\mathbf{2 8 0 0}$ if we only count "Kits, cats, sacks, wives" and exclude the narrator and the man.
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## Round 2: Pure Logic 1



## 1. A Chess Problem

If a standard $8 \times 8$ chessboard has two of its diagonally opposite corners removed, is it possible to place 31 dominoes so as to cover all of the remaining 62 squares?

## 2. Awkward Age

A girl was ten on her last birthday, and will be twelve on her next birthday. How is this possible?

## 3. Rising Tide

A ladder hangs over the side of a ship anchored in port. The bottom rung of the ladder touches the water. The distance between rungs is 30 cm , and the length of the ladder is 270 cm .

If the tide is rising at a rate of 15 cm per hour, how long will it be before the water reaches the top rung?

## 4. The Bag of Counterfeit Coins

There are ten bags of coins in front of you. Nine of them contain genuine coins but one of them, you know, is full of counterfeit coins. You cannot see any difference between the coins or bags, or feel any difference when you lift them. However, you know that the counterfeit coins weigh one gram less than the real coins.

You have an accurate scale, but are only allowed one weighing to determine which of the ten bags contains counterfeit coins. How should you proceed?

## 5. Head Start

Usain and Mo race one another over 100m. When Usain crosses the finish line, Mo is only at the 90 m mark. They agree to have a second race, but to make it fairer, Usain will begin 10 m
behind the starting line. All things being equal, who would you expect to win the race?


## 6. A Famous Portrait

A man is shown a portrait painting. He looks closely, then exclaims rather cryptically: "Brothers and sisters have I none, but that man's father is my father's son."

Who is the man in the portrait?

## ㄱ. Jewel Thieves

There may not be honor among thieves, but there is certainly hierarchy, and it pays to be at the top. Four thieves were planning to break into the king's jewel room, and had agreed among themselves to enter one at a time and each take half of however many jewels they found there. The first thief entered the jewel room, filled his pockets as agreed, and was about to make off, when he realized that he would be leaving the second thief with an impossible division. "Well, to make things easier for him" he thought "I had better take another jewel", and that's exactly what he did. The second thief entered the room, took his half of the jewels, and encountering the same problem of division, resolved on the same solution, and also took one jewel more. The third thief followed suit, taking half, and one jewel more. At last, it was the fourth thief's turn, but when he entered - alas! - he saw that all the jewels were gone.

How many jewels were there to begin with?

## 8. Barbershop Duet

A man arrives in a small town in the middle of nowhere and is in desperate need of a haircut. He observes that there are only two barbers in the town. The East Side Barber is immaculately presentable, and perfectly groomed. Coincidentally, he has the very haircut the man wishes for himself. The West Side Barber, the man sees to his dismay, is poorly dressed and in desperate need of a shave. He has an awful shock of hair the man wouldn't wish upon his worst enemy. Which barber shop does he decide to visit and why?

## 9. The Missing Dollar

Three guests check into a hotel room. The manager informs them that it will cost $\$ 30$, so they each pay $\$ 10$. A little later however, the manager realizes that he has made a mistake; the room only costs $\$ 25$ dollars! He calls the bellboy and gives him $\$ 5$ to return to the guests.

On the way to the room, it occurs to the Bellboy that $\$ 5$ cannot be evenly divided between the three guests, and he decides to save them the trouble of arguing over its division by pocketing $\$ 2$ dollars for himself. He then gives each of the guests $\$ 1$ back.

As each guest paid $\$ 10$ initially and received $\$ 1$ back, in effect, they each paid $\$ 9$.
$\$ 9$ multiplied by 3 is $\$ 27$, and the bellboy took $\$ 2$ for himself.
$\$ 27+\$ 2=\$ 29$. So who has the missing dollar?

## 10. Three Switches - One Light

There are three light switches outside a room. Inside is a single light bulb, controlled by one of the three switches. You need to determine which switch operates the bulb.

You can turn the switches on and off as many times as you wish (they are all off to begin with), but may only enter the room once. There is no one there to help you. The door to the room is closed, and there are no windows, so you cannot see inside. How can you discover which switch operates the bulb?

## Answers: Round 2

1. No. The simplest proof is that every domino must cover one black square and one white square. The diagonally opposite corners of a chess board are the same color, so removing them would leave an imbalanced number of black and white squares (either 32 white and 30 black; or 32 black and 30 white).

## 2. Today is her eleventh birthday

3. The ship will rise with the tide, so the water will always remain level with the first rung.
4. Number the bags from 1-10, then remove one coin from the first bag, two from the second, three from the third etc. all the way up to the tenth bag. Next weigh the coins you have removed. Their total weight will be somewhere between 1 and 10 grams lighter than it would have been if all the coins were genuine. If it is one gram too light, the counterfeit coin came from the first bag; two grams too light, and they came from the second bag etc. all the way up again to the tenth bag.
5. Assuming that Usain does not slow down through tiredness in the final 10 m , he will win this race as well. At the 90 m mark they will be neck and neck (Usain having covered 100 m and Mo 90 m as in their previous race), and Usain will be faster over the final 10 m .
6. The man is looking at a portrait of his own son.
7. 14. The answer is easily calculated if you work backwards:

The third thief must have found two jewels; the second thief, six; and the first thief, fourteen.
8. The West Side Barber. The man reasons that as there are only two barbers in town, they must cut each other's hair.
9. This is not a paradox, and relies on misdirection from the teller.

If we examine the initial transaction correctly we find:
\$30 (initial payment) = \$25 (to the hotel) + \$2 (to the bellboy) + \$3 (refund)
Confusion arises because the listener is encouraged to add the $\$ 2$ stolen by the bellboy to the
$\$ 27$ paid by the guests, and arrive at $\$ 29$. There is no reason to make this calculation, as the bellboy's $\mathbf{\$ 2}$ is already included in the guests' $\mathbf{\$ 2 7}$ payment. When the guests receive their refund, they have indeed paid $\$ 27$, but only $\$ 25$ has gone to the hotel.

The $\$ 27$ is accounted for as follows:
\$27 (payment after receiving refund) = \$25 to the hotel + \$2 to the bellboy

## 10. Take the following steps:

1. Turn two switches ON, and leave one switch OFF.
2. Wait five minutes.
3. Turn one switch from ON to OFF. (One switch is now ON and two are OFF)
4. Enter the room.
a) If the light bulb is ON , it is operated by the switch you left ON.
b) If the light bulb is OFF, touch it.

If it is warm it is operated by the switch you turned ON and OFF.
If it is cold, it is operated by the switch you never turned ON.

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## Round 3: Coins, Cups and Toothpicks

## 1. Coin Triangle

How can you reverse the triangle by moving only three coins?


## 2. Three Coin Logic

There are three coins in front of you. One is gold; one is silver; one is bronze. You are asked to make one statement. If what you say is true, you will receive one of coins. If what you say is false, you will get nothing. What can you say to guarantee you receive the gold coin?

## 3. Jumping Coins



I


2


3


4


5


6


7


8


9
10

Ten coins are placed in line as shown above. The challenge is to rearrange the coins into five stacks of two coins, and do so in only five moves. A move is completed when a coin jumps to the right or left over two coins to land on a single coin. For example, the coin at position 6 could jump to the left over two coins to land on the coin a position 3. The coin at position 2 could then jump over the new stack at position 3 to land at position 4.

## 4. Coins and Cups



How can you put ten coins into three cups so that each cup contains an odd number of coins?

## 5. Alternating Glasses



Six glasses are placed in a row. The first three contain water; the second three are empty. By moving only one glass, how is it possible to rearrange the glasses so they alternate between full and empty.

## 6. Upside-down Glasses



Seven upside-down glasses are placed in row. The challenge is to turn them all right-side up in the fewest possible moves. One move consists of turning over three glasses. The glasses may or may not be adjacent, but you must always turn over three at a time.

How many moves are required to turn all of the glasses right-side up?

## 7. From Nine to Five



How can you correct this sum by moving only one toothpick?

## 8. Fish Bones



How can you make the fish swim to the right by moving just three toothpicks?

## 9. One Toothpick Too Few



Is it possible to remove six toothpicks and be left with ten?

## 10. Four Triangles



Here two triangles are formed using six toothpicks in total.
Using only the same six toothpicks, how can you form four triangles each of the same size as these?

## Answers: Round 3

1. 


2." You will not give me the silver coin or the bronze coin."

After saying this, you cannot then be given either of these coins. Giving you even one of them would make the statement false and you have been told that you will get nothing for a false statement.

Equally, you cannot be given nothing. If you are not given the silver or bronze coin, the statement you have said is true, and you must be given one coin for it. Therefore, you must receive the gold coin.
3. There are multiple solutions to this puzzle. Here is one:
(4 to 1; 6 to $9 ; 8$ to $3 ; 2$ to $5 ; 10$ to 7 )
4. The trick is to put one of the cups inside another. Here is one possible solution.

5. Pour the water from the second glass into the fifth glass, then return the empty glass to its original position.

## 6. Three

Move 1: Turn three glass up.
Move 2: Turn two glasses up and one glass down again.
Move 3: Turn three glasses up.
7. You can change the second IX into a IV:

8.

2.
9. Yes:

10. With only six toothpicks, you will need three dimensions!

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## Round 4: Words Words Words 1



## 1. Six Minus One

I know a word; six letters it contains. And yet if you take one away, twelve is what remains.
What is the word?

## 2. Thirteen Animals

Below are the names of thirteen animals. However, twenty-six letters have been removed; two from each animal's name. In total, one of every letter from $\mathbf{A}$ to $\mathbf{Z}$ has been removed. The remaining letters in each word are in the correct order. What are the thirteen animals?

1) $i b b n$
2) $e b r$
3) $s u i$
4) $s k k$

5) igr
6) 
7) hee
8) red o


## 5) oaa

## 3. A Long Time Waiting

Which letter of the alphabet can you add four letters to without changing its pronunciation?

## 4. Word Prison

Ten letters here a word impound;

Remove six letters and the word is found.

## S FIOXLE UTNTI

## 5. Not a Heavy Word

Forward I am heavy, but backward I am not.
What am I?


## 6. The Answer to Everything

I am the beginning of the end, and the end of time and space. I am essential to creation, and I surround every place. What am I?

## 7. Odd One Out

Which of the following phrases is the odd one out?

1. Matadors are discovered roaming its districts
2. Remains of magnificent empire
3. Turned out Kyoto: (Yen only)
4. Broadleaf rainforest attracts zoologists inspecting life
5. Picturesque (as Renoir impressionistically shows)

## 8. An Impossible Word?

What word starts with "e," and ends with "e," but often has only one letter in it?

## 9. A Charade by Sam Loyd

My first's possessed by all mankind,
My second skims the wave;
My whole will dash through wave and wind.
In hopes my first to save.

## 10. Nine Words in One

The challenge here is to build a nine letter word, one letter at a time, so that at every stage a word can be read. You've been given the first letter to get you started, and the arrows indicate where the next letter should be placed at each stage.

An Example with a four-letter word:



## Answers: Round 4

1. Dozens (remove the " $s$ " and you're left with "dozen")
2. The 26 animals are:
1) Gibbon
2) Zebra
3) Squid
4) Skunk
5) Koala
6) Tiger
7) Sheep
8) Red Fox
9) Hyena
10) Jackal
11) Bison
12) Beaver
13) Wombat
3. Q. You can add "ueue" to make "Queue".
4. FOUND (Remove "S" "I" "X" "L" "E" "T" "T" "E" "R" "S")
5. Ton
6. The letter " e "
7. Broadleaf rainforest attracts zoologists inspecting life. In this instance, the initial letters of each word spell the name of a country (Brazil). All of the other phrases spell the names of capital cities (Madrid, Rome, Tokyo, and Paris).
8. Envelope
9. Lifeboat
10. I, IN, SIN, SING, STING, STRING, STARING, STARTING, STARTLING *llustrations

## Round 5: A Different Way of Seeing



## 1. East and West

The king's two bodyguards developed an ingenious method for assuring the king's safety. With the king standing between them, they would face in opposite directions; one looking to the west and the other to the east, but at the same time, and without the use of any reflective surfaces, they would both be able to observe the king clearly. How was this possible?

## 2. A Seemingly Simple Sentence

What does this say?


## 3. A Cake Divided

You need to divide a round birthday cake into eight pieces, so each of your guests will have something to eat. How can you do this by making only three straight cuts with a knife, and without moving any of the pieces?

## 4. Triangles

How many triangles are there in the image below?


## 5. Mountainous Mystery

Before Mount Everest was discovered, what was the highest mountain in the world?


## 6. A Black Cat

A black cat stepped out onto a black road where there were no street lights, and not even the faintest glimmer of light from the moon. A black car approached with its lights turned off, and yet the driver slowed down and allowed the cat to cross the road. How did he know the cat was there?

## 7. A Leap of Faith

How is it possible to jump from a 40-foot ladder onto concrete without getting hurt?

## 8. A Sleepy Bus Driver

A bus driver is heading down a street in San Francisco. It's been a long day and he's feeling tired. He pays no attention to a stop sign, and as a police car is passing, he goes onto the pavement, and turns the wrong way into a one-way street. The policemen have seen everything. Can you explain why the bus driver isn't arrested?

## 9. Counting Letters

How many F's are there in this sentence?

# FINISHED FILES ARE THE RESULT OF YEARS OF SCIENTIFIC STUDY COMBINED WITH THE EXPERIENCE OF YEARS 

10. Crows

There are 17 crows in a tree. Rather spitefully, the farmer comes out and shoots one. How many crows remain?

## Answers: Round 5

1. They were facing each other.
2. The cat sat on the the mat. It's very easy to miss the second "the".
3. The cake is easily divided into quarters with your first two cuts (simply make an " $X$ "). With your third cut however, you must turn the knife, and slice the cake horizontally.
4. 13
5. Mount Everest
6. It was daytime.
7. By jumping from the bottom rung.
8. He's walking.
9. There are six F's. It's easy to skim over "of", where the " f " is sounded as a " v ".
10. $\mathbf{0}$. The other 16 have flown away!
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## Round 6: The Tale's the Thing: Lateral Thinking Puzzles 1

This round presents ten lateral thinking puzzles that blend logic with storytelling and creative speculation. Puzzles of this kind are best enjoyed with friends, we think, but this isn't to say you shouldn't attempt to solve them on your own first!

If you are playing with friends, one person should take on the role of storyteller. They may embellish the scenario however they wish, and decide how generous to be with clues and guidance. To begin with, the storyteller should be restricted to responding to questions with only "Yes", "No", or "It's not important".

Although there are many possible solutions to the puzzles in this round, the only truly satisfying and legitimate answers are those which take account of every detail mentioned in the story.


## 1. Bankrupt

A man is pushing his car along the road. He arrives at a hotel, stops and immediately declares "I'm bankrupt!"

Can you explain what has happened?

## 2. Five Men Go To Church

Five men are going to church. It starts to rain, and four of the men begin to run. When they arrive at the church, the four men who ran are soaking wet, whereas the fifth man, who didn't run, is completely dry.

How is this possible?

## 3. Welcome to the Saloon

A man enters a saloon and asks the barman for a glass of water. The barman reaches under the bar, pulls out a gun, and points it at the man. The man says "Thank you", and leaves the saloon.

How do you explain their behavior?

## 4. Murderous Intentions?

A woman has an argument with her husband, and later that day she shoots him. She then holds him under water for five minutes, pulls him out again and hangs him. In the evening they go to a restaurant together and have a wonderful time.

How is this possible?

## 5. Prophetic Watchman

A night-watchman on the city wall rushes into the Grand Vizier's chamber in the morning. He explains frantically that last night he had a dream vision, and saw the city under siege. The Grand Vizier reflects on what he has heard and decides to heed the man's warning. It proves provident, as the city is indeed attacked that very evening, and thanks to the night-watchman's warning, they are able to repel the invaders. In the midst of the celebrations, the Grand Vizier summons the man to his chamber. But instead of rewarding him, he dismisses him on the spot. Why?

$$
4
$$

## 6. Camel Race

The dying ruler of a desert kingdom decreed that his empire would not be split between his two sons, but passed in its entirety to whichever of them proved more deserving of it. He devised a test of stamina. His sons would ride camels in a race across the desert. It was not a race in the ordinary sense however - the son whose camel arrived at the finish line last would inherit the kingdom.

The brothers saddled their camels and set off. They were soon wandering hopelessly through the desert. After many days without seeing another living creature, they encountered a man sitting cross-legged at the crest of a great sand dune. In desperation, they dismounted to seek his counsel. He proved wise indeed, for once he had spoken, the brothers leapt onto the camels and galloped away as fast as they could towards the finish line.

What did the wise man tell them?

## 7. Anthony and Cleopatra

When Anthony and Cleopatra were discovered dead on the floor of their Egyptian villa, there was a broken bowl lying beside them. Their bodies were examined and there was nothing to indicate that they had been attacked or poisoned. The door was locked, and although the window was open, it appeared that nobody else had entered the room.

How did they die?

## 8. The Elevator

A man lives on the twelfth floor of an apartment block. Each morning he takes the elevator down to the ground floor and goes to work. When he returns in the evening, he enters the lift on the ground floor. If it has been raining that day, he usually goes directly to the twelfth floor. Likewise, if there are other people in the elevator, he goes directly to the twelfth floor. However, at all other times, he takes the elevator to the ninth floor and walks up the remaining three flights of steps to his apartment.

Can you explain why he does this?

## 9. Mystery in the Snow

A man with a pack on his back is found dead in a snow-covered field. He is miles from the nearest town, and yet there are no tracks in the snow.

How did he die?

## 10. A Suspicious Death

A woman's father died. At the funeral she saw a man she had never seen before and instantly fell in love with him. Nobody could tell her who he was, however, or where he came from.

A few days later, the woman's mother was dead as well.
Can you explain what happened?

## Answers: Round 6

1. He is playing monopoly.
2. It is the fifth man's funeral, and the other four men are carrying him into the church in a coffin.
3. The man had hiccups, and the barman thought a sudden shock would make them go away. It did, so the man thanked him, and no longer needing the water, left the saloon.
4. The woman is a photographer, and is developing the pictures she has taken of her husband. Their argument is forgotten and they can enjoy their evening together.
5. The night-watchman had inadvertently revealed that he was asleep on the job.
6. He advised them to switch camels. Their father said that the son whose_camel crossed the finish line last would inherit the kingdom. If they ride each other's camels, they will both try to cross the finish line first.
7. Anthony and Cleopatra are goldfish. A strong gust of wind blew their bowl onto the floor.
8. He is of short stature, and cannot reach the button for the twelfth floor. If it has been raining, he usually has his umbrella with him, and can use it to press the button.
9. He jumped from an aircraft, but his parachute failed to open from his pack.
10. In a desperate attempt to draw the mysterious stranger to her, the woman murdered her own mother. She hoped that he would attend this funeral as well.
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## Round 7: What am I? Painting Word Pictures



1. You Use a Knife to Slice my Head

You use a knife to slice my head,
Then weep beside me when I'm dead.

## 2. Reaching Stiffly for the Sky

Reaching stiffly for the sky,
I bare my fingers when it's cold.
In warmth I wear an emerald glove,
And in between I dress in gold.

## 3. Two Horses

Two horses, swiftest traveling,
And harnessed in a pair,
Grazing ever in places
Distant from them.

## 4. They Have Not Flesh

They have not flesh, nor feathers, nor scales, nor bone.
Yet they have fingers and thumbs of their own.

## 5. An Iron Horse

An iron horse with a flaxen tail that gallops on and on.
As further and further it onward runs, so shorter and shorter its tail becomes.

## 6. Glittering Points

Glittering points that downward thrust, Sparkling spears that never rust.

## 7. A Wee, Wee Man

A wee, wee man, in a red, red coat,
A staff in his hand, and a bone in his throat.

## 8. A House of Wood

A house of wood in a hidden place,
Built without nails or glue.
High above the earthen ground,
It holds pale gems of blue.

## 9. If a Man Carried My Burden

If a man carried my burden, he would break his back.
I am not rich, but I leave silver in my track.
10. Here, the cart comes first and the horse comes after

Here, the cart comes first and the horse comes after,
(And laughter follows the disaster).
Here, the rainbow comes before the shower,
And a day is passed long before an hour.
Here, the number eight precedes all others,
And sisters always follow brothers.

Here, the moon appears long before the stars
And close to Mercury and Mars.
Do you know where I am?

## Answers: Round 7

1. An Onion
2. A Deciduous Tree
3. The Eyes
4. Gloves
5. A Needle and Thread
6. Icicles
7. A Cherry
8. A Robin's Nest
9. A Snail
10. In a Dictionary
*llustrations

## Round 8: Number Puzzlers



## 1. Ten Fish

Ten fish I caught without an eye, and nine without a tail. Six had no head, and half of eight leapt out of my pail. Now tell me please, as I ask it, how many fish are in my basket?

## 2. A Simple Calculation

A baseball bat and ball cost $\$ 30$ in total. If the bat costs $\$ 29$ more than the ball, how much do they each cost?

## 3. Popularity Contest

How many friends do I have if all of them except two live in Los Angeles, and all of them except two live in Paris, and all of them except two live in Sydney?

## 4. Fractions

Two in a whole and four in a pair, and six in a trio you see; eight's a quartet, but what you must get is the name that fits just one of me.

## 5. House Numbers

In a desperate and ill-conceived attempt to become popular with your new neighbours, you have decided to buy new house numbers for everyone in the street. If there are 100 houses in the street, and the numbers are sold as individual figures, how many number 9's will you have to buy?


## 6. A Precocious Child

When asked how old he is, a child replies: In four years, I will be twice as old as I was three years ago. And a year after that I will be three times as old as I was five years ago.

How old is the child?

## 7. A Pyramid Sequence

What is the next number in the sequence below?

$$
\begin{gathered}
1 \\
11 \\
21 \\
1211 \\
111221 \\
\text { ? ? ? ? ? ? }
\end{gathered}
$$

## 8. Two Hens

You have an opportunity to buy a hen. In fact, you have been offered a choice between two quite remarkable animals. One of the hens produces six dozen dozen eggs per month, and the other produces a half dozen dozen.

Admittedly, both seem impressive. Does it matter which hen you choose?
9. Making 100

Take four digits, all alike, and using whichever of the following signs you require, arrive at a total of 100 .

## $\div+\quad \mathbf{-}, \mathbf{X}$

Example: You choose number 2. You attempt $22 \times 2 \times 2$, but the answer is only 88 .

## 10. Any Answer You Wish?

How many letters are there in the answer to this question? ${ }^{1}$

## Answers: Round 8

## 1. Zero

10 without an eye (I) is 0 ; 9 without a tail is $0 ; 6$ without a head is 0 ; and half of 8 (if it is divided horizontally) is 0.
2. The bat costs $\mathbf{\$ 2 9 . 5 0}$ and the ball costs $\mathbf{\$ 0 . 5 0}$.
3. There are two possible solutions to this puzzle:

Three (one in each of the cities mentioned)
Or Two (and neither lives in any of the cities mentioned)
4. A Half
5. 20; for house numbers: $9,19,29,39,49,59,69,79,89,90,91,92,93,94,95,96,97,98$, and 99 (remember there are two nines here)
6. 10 years old
7. 312211. Each row describes the arrangement of numbers in the row that preceded it. So, in the row before this, there were "three ones, two twos, and two ones".
8. Yes, it matters. While you may be perfectly satisfied with a half dozen dozen eggs per month ( $6 \times 12=72$ ); it is far less than six dozen dozen ( $6 \times 144=846$ ).
9. $99+9 / 9=100$
10. The straightforward answer is Four.

But more creatively, you could go for:

0

Ten letters

Eleven plus two
Twelve plus one
*llustrations

## Round 9: Brainbats

Each of these brainbats represents a common expression. Can you decipher them all? The answer to number 1 should help you get started.


## ONCE <br> 211:23 AM

## STEP PETS PETS

3. 

## HIJKLMNO

4. 

## ENTURY

5 .

## MCE MCE MCE <br> $\underline{6}$. <br> TILEVARTME <br> 7. <br> 1s9a8fe1t6y0 <br> B <br> A <br> E DUMR

10. If you've solved everything so far, this last brainbat will be an appropriate way to conclude the round:

$$
\begin{aligned}
& \text { yy u r yy u b } \\
& \text { i c ur yy } 4 \text { me! }
\end{aligned}
$$

## Answers: Round 9

1. A Foot in the Door
2. Once Upon a Time
3. One Step Forwards, Two Steps Back
4. Water $\left(\mathrm{H}_{2} \mathrm{O}\right)$
5. Long Time No See (The letter "C" has been removed from "CENTURY"). End of the Century is a valid alternative answer.
6. Three Blind Mice
7. Travel Back in Time
8. Safety in Numbers
9. Bermuda Triangle
10. Too Wise You Are, Too Wise You Be, I See You Are Too Wise For Me
*llustrations

## Round 10: Pure Logic 2



## 1. Introductions

There are 20 people at a party. If each of them is willing to shake hands only with people who are smaller than they are, how many people will shake hands in total?

## 2. The Logical Landlord

Thirteen people arrive at a small hotel, each wishing for a room of their own. The hotel only has twelve rooms. The landlord does not want to lose business and is afraid that he will lose all of the guests if he has to turn one of them away.

He proposes an idea that will allow all thirteen guests to have a room of their own:
The thirteenth guest will wait for a few minutes with the first guest in room 1. While the two of them wait there, the third guest can be led to room 2, the fourth guest to room 3, the fifth guest to room 4 etc. Finally the twelfth guest will be led to room 11, and the thirteenth guest can be collected from room 1 and led to the unoccupied room 12!

The guests are impressed with the landlord's ingenuity, but suspect there's a problem somewhere in his reasoning. Can you identify it?

## 3. 100 White Stones and 100 Black Stones

A pirate generously offers his captives a chance to live.
He places two large jars in front of them. One of them contains 100 white stones, and the other, 100 black stones. The captives may redistribute the stones however they wish between the two jars. When they have finished, the jars will be thoroughly shaken. The captives will then be blindfolded, and presented with one of the two jars to select a stone from. If they select a white stone, they will be set free, but if they select a black stone, they will be thrown overboard.

How should the captives distribute the stones to have the best chance of surviving?

## 4. Indivisible Cows

A farmer died and his seventeen cows were passed down to his three sons. However, the father's will stipulated the following distribution of the cows: his oldest son should receive $1 / 2$, the middle son $1 / 3$, and the youngest $1 / 9$.

Since half a cow is of no use to anyone, the brothers racked their brains for a practical solution. Eventually, they took their problem to a neighboring farmer, renowned for his sharp intellect. They left their neighbor's farm with the perfect solution to the problem. What was it?

## 5. 1000 Coins

You have 1000 coins and wish to distribute them between ten bags, so that you can quickly hand over any number of coins by simply selecting the appropriate combination of bags. Regardless of whether you're asked for 7 or 777 coins, you should be able to quickly provide the exact number of coins.

How should you distribute the coins between the bags?

## 6. A Sultry Night

In Waco, Texas, July nights are usually warm and dry. But on one particular evening you notice that it is raining heavily at midnight. Is it likely to be sunny again in 72 hours' time?

## 7. Three Card Trick



Three playing cards are drawn from a standard pack and placed in a row in front of you. The color of the cards alternates. To the right of an ace is at least one queen. To the left of a queen is another queen. To the left of a spade is a heart. To the right of a spade is a spade

What are the three playing cards and how are they arranged?

## 8. Two Sacks of Gold

You are offered two sacks of gold: One of them weighs 60 pounds plus one third of its weight. The other weighs 40 pounds plus half its weight. Does is matter which sack you take?

## 9. A Puzzle by Lewis Carroll

The following riddle comes from a puzzle collection by Lewis Carroll, the author of Alice's

Adventures in Wonderland, and Through the Looking Glass. Be careful with this one!
A stick I found that weighed two pound:
I sawed it up one day,
In pieces eight of equal weight!
How much did each piece weigh?

## 10. A Jousting Tournament

King Arthur arranged a jousting tournament and invited knights from all across the realm to take part. Naturally, it would be a knockout tournament, with knights paired against each other and the winner proceeding to the next round.

517 knights responded to the invitation. This was a shame, Arthur thought, as it would have been far easier to arrange the tournament with only 512 . He began trying to calculate how many jousts there would be in total: 258 in the first round, plus 129 in the second...Midway through his calculations however, Merlin entered his chambers and laughed at the effort the King was going to with his sums. "But it's so simple!" he said, and instantly told the King how many jousts there would be.

How many jousts will there be, and how did Merlin arrive at the answer so quickly (and without any recourse to magic)?

## Answers: Round 10

1. Zero. Nobody can shake hands, as one of the two people will always be taller than the other.
2. The confusion arises when the third guest is led to room number 2 and the second guest is passed over.
3. They should put one white stone in one of the jars, and the remaining 199 stones in the other. This gives them a $74.74 \%$ chance of being set free.
4. Their neighbor lent them a cow. This gave them eighteen cows in total. The oldest son could then take nine; the middle son, six; and the youngest son, two. The remaining cow could then be returned to their neighbor.
5. You should arrange the coins in ascending powers of 2.

Bag 1: 1 coin
Bag 2: 2 coins
Bag 3: 4 coins
Bag 4: 8 coins
Bag 5: 16 coins
Bag 6: 32 coins
Bag 7: 64 coins
Bag 8: 128 coins
Bag 9: 256 coins

## Bag 10: 489 coins (all of the remaining coins)

Any number of coins between 1 and 1000 can be selected easily from this distribution.
For instance: $7=$ Bag $1+$ Bag $2+$ Bag 3; $777=$ Bag $10+$ Bag $9+$ Bag 6
6. No. In 72 hours' time it will be midnight again. It may be dry, but it certainly won't be sunny.
7. From left to right: Ace of Spades, Queen of Hearts, Queen of Spades
8. Assuming you wish to benefit financially from your decision, you would do better to take the sack that weighs 60 pounds plus one third of its weight. This sack weighs 90 pounds, whereas the other sack only weighs 80 pounds.
9. Lewis Carroll's Answer:

In Shylock's bargain for the flesh was found
No mention of the blood that flowed around:
So when the stick was sawed in eight,
The sawdust lost diminished from the weight!
10. 516. All but the champion will lose exactly one joust.
*llustrations

## Round 11: Listen Carefully



## 1. The Lesser of Three Evils

Unfortunately, you are condemned to death. But, in something approaching clemency, your captor allows you to choose which of his execution rooms to enter.
A) A room full of raging fires that never cease to burn
B) A room full of armed assassins, who will be rewarded handsomely for killing you
C) A room full of ferocious lions that haven't eaten in three years

Which room should you choose?

## 2. A Large Family

A father and mother have three daughters, and each daughter has one brother. How many people are in the family in total?

## 3. Presidential Succession

If the Vice President of the United States were to die, who would then be President?

## 4. A Blue Bungalow

There was once a blue bungalow. Everything in it was blue - the walls, the carpets, the furniture. The people who lived there even insisted that their guests wear blue clothes. What color were the stairs?

## 5. The Third Child

David's mother had three children. The first child was named April; the second child was named May. What was the third child's name?

# M <br>  

## 6. A Bovine Mystery

A farmer had twelve prize cows. He arose one morning to find that all but nine of them had been stolen by cattle thieves. How many did he have left?

## 7. A Hungry Donkey

A donkey was tied to a rope 10 -feet long. 20 feet away was a bale of hay that seemed especially appetizing to the donkey. To his delight, he found a way to reach it, and was not disappointed by its quality. How did he reach it?

## 8. Chasing Gold

If you are running a race, and you overtake the person in second place, what place do you move into?

## 9. Equally Matched

Two men were playing chess. They played three games, and although no games were drawn, they won the same number of games. How is this possible?

## 10. Excavation Logic

If it takes one man three days to dig a hole, how long would it take two men to dig half a hole?

## Answers: Round 11

1. C) The room full of lions. If they haven't eaten in three years, they will have starved to death.
2. Six. They share the same brother.
3. The current President would remain President.
4. It's a bungalow, so there are no stairs.
5. David
6. Nine
7. Very easily - the rope was only tied at one end.
8. Second
9. They were not playing against each other.
10. It's not possible to dig half a hole.
*llustrations

## Round 12: Words Words Words 2



## 1. A Seven-Letter Word

Three syllables in total, and so beginning with the first;
At two letters I am a male, at three I'm the converse.
Four letters and I'm male again but greater than of late,
At my full length my gender's changed, but I'm equally as great.

## 2. The Any Which Way Word

SOS is read the same forwards, backwards, and even upside-down. What four-letter word also shares these properties?

## 3. Letter Sequence

What are the next three letters in this sequence?

#  

## 4. Four Letters for Four Words

You receive a letter from an old colleague, who you haven't heard from in many years. He wishes to remind you of a long outstanding debt you owe him. You are certain that you paid this off a long time ago and have no intention of wasting ink, or even keystrokes on the person behind this audacious claim. How can you clearly deny his assertion, using only four letters to stand-in for four words?

## 5. Another Letter Sequence

Look carefully at the following series of letters. Which other letter fits the pattern?

## Word Ladder Puzzles

The aim in the following five puzzles is to link two words together by a chain of other words. At each step, you may change one letter of the current word to create a new word, and thereby move closer to the target word.

For example, we can transform WOOD to COAL in three moves:
WOOD $\Rightarrow \mathrm{WOOL} \Rightarrow \mathrm{COOL} \longrightarrow \mathrm{COAL}$
6. EAST $\Rightarrow \longrightarrow$ WEST
7. DOG $\longrightarrow \longrightarrow$ CAT
8. WARM $\longrightarrow \longrightarrow \longrightarrow$ COLD
9. HAND $\qquad$ $\Rightarrow$ $\Rightarrow$ $\Rightarrow$ $\longrightarrow \mathrm{FOOT}$
10. SLEEP

DREAM

## Answers: Round 12

1. Heroine
2. NOON
3. $\mathbf{E}, \mathbf{N}, \mathbf{T}$ (they are the initial letters of the numbers from one to ten)
4. I.O.U.O (I owe you nothing)
5. H. All of the letters can be flipped vertically and still be read.
6. East, Vast, Vest, West
7. Dog, Cog, Cot, Cat.
8. Warm, Ward, Word, Cord, Cold
9. Hand, Band, Bond, Fond, Food, Foot
10. Sleep, Bleep, Bleed, Breed, Bread, Dread, Dream
*llustrations

## Round 13: Pen and Paper

## 1. Hieroglyphics

Draw the next number in this sequence

# MO8M 

## 2. A Little House

Is it possible to draw the house below without lifting your pen from the paper, and without going over any of the lines more than once?


## 3. The Clever Gardener

A gardener is asked to plant five rows of cherry trees with four trees in each row. His employer gives him exactly enough money to buy twenty trees from the local nursery, and jokingly tells him that he can keep whatever change there is. On the way to the nursery, the gardener realizes that it if he buys just ten trees, it will still be possible to plant five rows with four trees in each, and he can keep half the money he has been given.

How does he plan to plant the trees?

## 4. Number Grid 1-9

How can you place the numbers 1-9 in a $3 \times 3$ grid so that every horizontal, vertical and diagonal line adds up to 15 ?


## 5. Nine Minus Three

By drawing one continuous line,
Can you subtract three from this nine?

## IX

## 6. Clock Face Division

How can you divide a clock face into three parts, so that the sums of the numbers in each part are equal?


## 7. Tic-Tac-Toe

What is the maximum number of $X$ 's you can place on a Tic-Tac-Toe board, without making three-in-a-row in any direction?


## 8. Two Ways

How can you add just one straight line to this equation to make it correct?

## $101011=10.50$

## 9. Nine Dots; Four Lines

The challenge here is to connect the nine dots using only four straight lines, and without lifting your pen from the paper.

10. Number Grid 1-8

How can you place the numbers 1-8 in the grid below, so that no consecutive numbers are in bordering squares (horizontally, vertically, or diagonally)?


## Answers: Round 13

1. It is a sequence of the numbers from 1-5 beside their mirror images.

2. Yes. Here is one of several possible solutions.

3. He will plant the trees in a five-point star formation.


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

5. Draw an " S " in front of the IX , to convert it to " SIX ".
6. By this division, the sum of each part is 26 .

7. Six:


## IOTO II = 10.50 <br> 8.


9.

Alternative solutions exist.
An origami-based solution makes it possible to align all of the dots and connect them with a single line. Equally, if the dots were drawn on a spherical object, it would be possible to draw a single straight line around the object that connected all of the dots.
10. Here is one possible solution.

*llustrations

## Round 14: What am I? New Riddles

The riddles included in this round have never been published before. We knew when we began compiling this collection that we wanted to include some completely original material, and decided that for this section, we would invite submissions from around the world. We were overwhelmed with the response. The following ten puzzles are our finest gleanings and come from five different countries. We hope you enjoy them.

Thank you and congratulations to the ten authors represented here.


## 1. Five Creatures Cross a Field of Snow

Five creatures cross a field of snow;
But leave a single track behind
Whose loops and bows are soon, I know,
Unravelled by the mind.

## 2. She Wears a Blue Ring

She wears a blue ring,
She wears a grey cloak.
She cannot sing her suffering

- Her tongue is made of oak.


## 3. It's Clear These Three Are Brothers

It's clear these three are brothers
For they share a single face.
But tell me why they chase each-other
Round and round their dwelling place.

## 4. Henry VIII to Anne Boleyn

"A gift?" "Yes love, a gift for you -
A vessel." "Ah! for drinking wine?"
"No love, observe, wine passes through.
It is for flesh and blood - and thine!"
What is the gift?
5. Tonight at the Ball I Dance, I Dance

Tonight at the ball I dance, I dance
As well as any you see.
Yet nobody takes me by the hand,
Or says a word to me.

6. An Alien's Instructions for Using an Artefact Discovered on Earth

To hypnotize, locate the eyes,
And drive your fingers through: Hold tight;
The mouth's now yours; the teeth and jaws,
Speak not — but bite bite bite!
7. My Makers, Having Had Their Hour

My makers, having had their hour,
Depart. I gain a hat and power
And like an actor from the wings
Step out upon the stage of kings.

## 8. When You Walk on the Living

When you walk on the living, there's scarcely a whisper;
But walk on the dead, and the crunch is much crisper!
The bones you have broken, are strewn in the street,

- What lies beneath your feet?


## 9. You Are Not Envious of Her

You are not envious of her,
Or so l'm sure you'd say,
But tell me why you always wear
What she wore yesterday?

Who is the mysterious woman?
10. Evening's Softest Blanket's Here

Evening's softest blanket's here
And brilliantly white.
And yet I pray to God I'm not
Enwrapped in it tonight!

## Answers: Round 14

1. A Scribe's Hand (Submitted by Deborah Jones from Tampa, Florida)
2. A Castle (Submitted by A. Gupta. from, Mumbai, India)
3. The Three Hands on a Clock Face (Submitted by Ellen Seares from, Auckland, New Zealand)
4. A Ring (Submitted by R. Hobbs from Bexhill, England)
5. A Shadow (Submitted by A. Franks from London, England)
6. A Pair of Scissors (Submitted by Immy Cooper from Dover, New Hampshire)
7. A Prince (Submitted by O. Emberey from Edinburgh, Scotland)
8. Fallen Leaves (Submitted by Luke Laycock from Manchester, England)
9. A Coat Hanger (Submitted by S. Taylor from Chicago, Illinois)
10. Fresh Snowfall (Submitted by I. Oliver, from New York)
*llustrations

## Round 15: Ditloids

This round presents ten "ditloids", where the challenge is simply to decipher what each initial stands for.

Example: $\mathbf{2 4} \mathbf{H}$ in a $\mathbf{D}=\mathbf{2 4}$ hours in a day


1. 12 S on the $\mathbf{F}$ of the $\mathbf{E} \mathbf{U}$
2. 18 H on a G C
3. $\mathbf{2} \mathbf{W}$ in a $\mathbf{F}$
4. 7HPB by JKR
5. $2 \mathbf{Q}$ in a $\mathbf{C}$

6. 7 E in the $\mathbf{H}$

ㄱ. 1 H in a D
8. $\mathbf{1 6 0} \mathbf{O}$ in a $\mathbf{P}$
9. $\mathbf{1} \mathrm{M}, 1 \mathrm{~T}, \mathbf{1} \mathrm{~W}, \mathbf{1 T}, \mathbf{1 F}, \mathbf{1 S}$, and $\mathbf{1 S}$ in a W
10. $\mathbf{1 6 P} \mathbf{P} \mathbf{4 K}, \mathbf{4 B}, 4 \mathrm{R}, \mathbf{2 Q}$ and $\mathbf{2 K}$ in a $\mathbf{G}$ of $\mathbf{C}$

## Answers: Round 15

1. $\mathbf{1 2}$ Stars on the Flag of the European Union
2. $\mathbf{1 8}$ Holes on a Golf Course
3. 2 Weeks in a Fortnight
4. $\mathbf{7}$ Harry Potter Books by J. K. Rowling
5. 2 Quavers in a Crotchet
6. 7 Events in the Heptathlon
7. $\mathbf{1}$ Hole in a Doughnut
8. 16 Ounces in a Pound
9. 1 Monday, 1 Tuesday, 1 Wednesday, 1 Thursday, 1 Friday, 1 Saturday, and 1 Sunday in a Week
10. 16 Pawns, 4 Knights, 4 Bishops, 4 Rooks, 2 Queens and 2 Kings in a Game of Chess. *llustrations

## Round 16: Number Puzzlers 2

## 1. Creative Subtraction

If you remove 1 from 10 the answer is 9 . But how is it possible to remove 1 from 9 and get 10 as the answer?

## 2. Six digits in a Sum

How can you use each of the digits from 1-6 to complete the equation on the blackboard?


## 3. Seven Pairs of Gloves

Seven pairs of black gloves and three pairs of brown gloves are mixed together in a box. If you were to reach into it blindfolded, how many gloves would you have to remove to be certain of having a matching pair?

## 4. Three and a Half Boys

A woman has seven children. Half of them are boys. How can this be possible?

## 5. A Seemingly Simple Sum

A teacher leans over one of her student's desks and puts a big red cross beside one of his sums. The student protests that the sum is correct, and is able to prove it to his teacher very simply. What did he do?

## 6. Goats and Chickens

A farmer is happy to let his chickens and goats wander in the same field. More out of courtesy than interest, you ask him how many animals there are in the field in total. It pleases him to reply cryptically, and he tells you that there are 30 heads and 84 legs in the field.

Can you work out from this how many goats and how many chickens he has?

## 7. A Profitable Horse



An unusual business opportunity presents itself. You are offered an excellent horse for only $\$ 60$ dollars. Naturally, you buy it. A year later, a stranger wishes to buy the horse, and offers you \$70. With little concern for the animal's feelings, you decide to part with it. Another year later, you see the horse again, and are filled with regret. It really is a fine animal. The stranger agrees to sell it back to you, but you have to pay him $\$ 80$. Finally, another year later, you meet the original owner of the horse. He too regrets having parted with it, and agrees to pay $\$ 90$ to get it back.

Who has profited most from the sale of the horse, and how much have they made?

## 8. Easy Addition

This puzzle works best when you read it aloud to someone else.
Perform the following calculation in your head, adding the numbers as quickly as you can. You may not use a pen and paper. Start with 1000 and add 40. Now add 1000. Add 30. Add another 1000. Now add 20. Add another 1000 and finally, add 10. What is the total?

## 9. Strange Addition

When is it possible to add 3 to 10 and get 1 as the answer?

## 10. Endless Addition

A misbehaving schoolboy receives an educational punishment from his maths teacher (who has always recognized the boy's ability, but continues to question his attitude). He is asked to stay behind during break-time until he has added up all of the numbers from 1 to 50 .

To the boy's delight, and his teacher's secret satisfaction, he calculates the answer in no time at all. The teacher challenges him to add the numbers from 1 to 1000 , and he arrives at this answer almost as quickly as the first.

What calculation did he perform?

## Answers: Round 16

1. Use Roman numerals: Nine (IX) minus one (I) = Ten (X)
2. $54 \times 3=162$
3. Eleven. In the worst possible scenario, you draw seven right-hand black gloves, and three right-hand brown gloves. The eleventh glove is certain to complete a pair.
4. They are all boys.
5. Turned his book around.
6. There are $\mathbf{1 2}$ goats and $\mathbf{1 8}$ chickens

The following line of reasoning can lead you to the answer:
$\mathrm{G}+\mathrm{C}=\mathbf{3 0}$
$4 \mathrm{G}+2 \mathrm{C}=84$
$2 \mathrm{G}+\mathbf{2 C}=60$
$2 G=24$
G=12
$\mathrm{C}=18$
7. You have. You made a $\$ 20$ dollar profit; the stranger made a $\$ 10$ profit; and the original owner made a $\$ 30$ loss.
8. 4100 (If you are only hearing the sum, it's very easy to move from 4090 to 5000 when you add the final 10)
9. When you are telling the time.
10. The boy realized that the median (middle point) of the numbers he is asked to add will also be their mean (average). He can therefore calculate the sum by simply identifying the median
and multiplying it by however many numbers he is asked to add.
If we add the numbers $1,2,3,4,5$, we can see that the median is 3 . This is also the mean of the numbers, and so when multiplied 5 , it gives us the sum of the numbers, 15 .

For the number 1-50, the boy takes a pen and paper and calculates 25.5 (the median and mean) $\mathbf{x 0} \mathbf{5 0} \mathbf{1 2 7 5}$

In the second instance, the sum is $\mathbf{5 0 0 . 5 \times 1 0 0 0 = 5 0 0 5 0 0}$
*llustrations

## Round 17: Pure Logic 3

## ハリ

## 1. Eight Loaves of Bread

A hungry traveler approaches a roadside tent, where two men have spread a simple lunch and are about to begin eating. The men invite the traveler to join them, and he accepts their invitation on condition that they allow him to pay for his portion. He learns that one of his hosts has contributed five loaves of bread to the lunch, and the other three.

The three men consume equal shares of the eight loaves, and upon taking his leave the traveler lays down eight pieces of silver to pay for his share. The contributor of the five loaves takes five pieces of silver and leaves three to his partner, who objects to the division and insists on getting half of the money.

The traveler does not wish to intrude in their affairs, but has an idea of how the money might be more equitably divided.

How many pieces of silver should each of his hosts receive?

## 2. Brothers and Sisters

I have as many brothers as I have sisters, but each one of my brothers has twice as many sisters as he has brothers. How many boys and how many girls are we in total?

## 3. Train to New York

A train leaves San Francisco bound for New York City. The distance between the cities is approximately 3000 miles, and the train travels at 100 mph . Two hours later, a train leaves New York City bound for San Francisco. It is a faster train and travels at 200 mph .

When the trains meet, which of them will be closer to San Francisco?

## 4. Two Hourglasses

With a 7-minute hourglass and an 11-minute hourglass, what is the simplest way to time exactly 15 minutes?

## 5. Links in a Chain

## 

A woman has six pieces of silver chain, each consisting of five links. She wishes to join the chains together to make a necklace, and visits a jeweller to inquire about the cost. He informs her that for every link he needs to break open and close again, he charges $\$ 1$. How much must the woman pay to make the necklace?


## 6. The Monty Hall Problem

Imagine you are on a game show, and the host offers you a choice of three doors. Behind one door is a car, and behind each of the other two doors is a goat. You choose a door. Regardless of your choice of door, the show will then proceed as follows:

The host, who knows what is behind each of the doors, opens another door to reveal a goat. He then asks you whether you would like to switch from the door you originally chose to the other unopened door.

Is it to your advantage to switch doors?

## 7. Four Gallons of Water

It is a fine day and you are standing at the river bank with a 5-gallon container and a 3-gallon container. Both are irregularly shaped. Strangely, you resolve to enjoy the day by filling the 5gallon container with exactly 4 gallons of water? How do you accomplish it?

## 8. Prisoners and Hats

A prison warden has resolved to give ten prisoners an opportunity to win their freedom.
Tomorrow, the men will be lined-up in single file, in a randomly determined order. They will all be facing in the same direction, and will only be able to see the people standing in front of them ( the tenth prisoner in the line will be able to see nine prisoners in front of him, whereas the first prisoner will not be able to see anyone).

The warden will then place either a black or a white hat on each prisoner's head. He may choose any arrangement of black and white hats. There could be ten white hats and no black
hats, or seven white hats and three black hats. The prisoners will only be able to see the color of the hats in front of them.

When all of the hats have been placed, the warden will walk to the back of the line and ask prisoner number ten: "What color hat are you wearing?" In reply, the prisoner may only say "black" or "white". Aside from this, he may not in any way communicate with the other prisoners. If he replies correctly, he will be set free. If he replies incorrectly he will be shot. The warden will move down the line asking each prisoner the same question in turn.

The warden has agreed that the prisoners can meet together this evening to formulate a plan of action.

What plan will maximize the number of lives they can save?

## 9. The Sorcerer's Tower

The sorcerer's tower was enchanted in such a way that it was able to build itself. Bricks, slates, tiles, and panes of glass, all flew to it of their own accord and danced into position. The tower doubled in size every day until after 100 days it reached a height that provided fine views over the entire realm. How many days did the tower take to reach half its full height?

## 10. Twins Three Days Removed

This puzzle pushes possibility to its limits.
Today is Emilio's birthday. His older twin sister, Elisa, telephones to wish him many happy returns. Three days later it is Elisa's birthday, and this time it is Emilio's turn to call and wish her a happy birthday.

How is it possible that Emilio and Elisa, though twins, have their birthdays three days apart?

## Answers: Round 17

1. The most equitable division is to give the contributor of 5 loaves 7 pieces of silver, and the other man just 1 . We should imagine the 8 loaves divided into thirds. If each man ate 1 third of each loaf of bread, they each had 8 thirds of the total 24 thirds.

The contributor of 5 loaves provided 15 of the total 24 thirds. If he had 8 himself, it means he provided 7 for the traveler. The contributor of 3 loaves, provided 9 of the total 24 thirds. If he had 8 himself, it means he provided only 1 for the traveler. Hence the division of 7 coins to 1 coin.
2. Four girls and three boys (the narrator must be a girl)
3. When they meet, they will be exactly the same distance from San Francisco.
4. Turn over both hourglasses. When the sand stops running in the 7-minute hourglass, turn it immediately back over. When the sand stops running in the 11-minute hourglass, turn the 7-minute hourglass over again. When the sand runs out of the 7-minute hourglass, exactly 15 minutes will have passed.
5. The jeweller can join all of the chains by breaking only five links. He should completely dismantle one of the chains, and then use the loose links to connect the other five chains into a necklace. Therefore the woman should only pay $\$ 5$.
6. Yes, you should switch doors. If you switch doors, you will have a two in three chance of winning the car. If you do not switch, you will retain the one in three chance you began with. This has proved one of the most contentious puzzles of all time, and many people continue to argue that switching doors will have no impact on your chances of winning. They are wrong.

The car could be located behind door A, B, or C. We do not know where it will be, but will imagine for now that it is behind door $A$.

There are then three possible scenarios

1. The car is behind door A. You pick door A.
2. The car is behind door A. You pick door B.
3. The car is behind door A. You pick door C.

After you have chosen a door, the host, who knows what is behind each door, will reveal a
goat.

1. The car is behind door A. You pick door A. Host reveals a goat behind door B or C.
2. The car is behind door A. You pick door B. Host reveals a goat behind door C.
3. The car is behind door A. You pick door C. Host reveals a goat behind door B.

## You are now given an opportunity to switch doors

1. The car is behind door A. You pick door A. Host reveals a goat behind door B or C. Switching loses.
2. The car is behind door A. You pick door B. Host reveals a goat behind door C. Switching wins.
3. The car is behind door A. You pick door C. Host reveals a goat behind door B. Switching wins.

Switching doors wins in two of the three possible scenarios when the car is behind door $A$.
If the car is behind door $B$, or $C$, switching doors will also win in two of the three scenarios (you should explode the scenarios in full as we have done if you wish to check)

## Another way of seeing things

The problem can also be viewed like this:
When you first pick a door, there is a one in three chance that you have chosen a car, and a two in three chance that you have chosen a goat. The odds are not in your favor. You know however, that the host is about to reveal a goat from behind one of the other two doors. What would you say if before revealing the goat, he offered you a chance to switch your one door for both of the others? You would certainly accept, as this would reverse the odds, and you would have a two in three chance of winning the car. The host effectively makes you this very offer. Before he opens the door with the goat behind it, we know exactly what he is going to do, and revealing it doesn't cost us anything. In effect, we are offered whatever is behind both of the doors.
7. Take the following steps:

1. Fill the 5-gallon container.
2. Pour the water from the 5-gallon container into the 3-gallon container. (2 gallons remain in the 5-gallon container)
3. Empty the 3-gallon container.
4. Pour the $\mathbf{2}$ gallons from the 5-gallon container into the 3-gallon container.
5. Fill the 5-gallon container.
6. Finally, pour the water from the 5-gallon container into the 3-gallon container until it is full, and you are left with exactly 4 gallons in the 5-gallon container.
7. The prisoners agree that whoever is standing at the back of the line, in tenth position, will say "white" if he can see an odd number of white hats, and "black" if he can see an even number of white hats. The prisoner in tenth position cannot improve or reduce his own chances of being set free, but he can convey crucial information to the nine prisoners in front of him.

If the tenth prisoner says "white", and the ninth prisoner sees an odd number of white hats in front of him, he knows that his own hat must be black - otherwise the tenth prisoner would have seen an even number of white hats. Equally, if the ninth prisoner sees an even number of white hats in front of him, he knows that his own hat must be white - otherwise the tenth prisoner would have seen an even number of white hats.

This explains how the ninth prisoner might correctly deduce the color of his hat through logical reasoning on his own part. Each successive prisoner will need to reason in a similar manner, but they do not have to memorize all of the answers they hear.

The first time a prisoner guesses "white", it signifies that an odd number of white hats is visible from the speaker's perspective.

When the next prisoner says "white", it must signify that an even number of white hats is visible from the speaker's perspective.

Each time someone says "white", the signification changes.
Knowing this, each prisoner is able to deduce the color of his own hat based on the number of times he hears the prisoners behind him say "white", and the number of white hats he can see in front of him.

This plan guarantees that nine of the prisoners will be set free. The prisoner at the back of the line, who speaks first, can never have more than a 50-50 chance of being set free.

## 9. 99 days

10. The twins' mother went into labor while traveling by boat across a change of time zone. Elisa was born early on March the $1^{\text {st }}$. Emilio was born in a different time zone, in the late hours of February $\mathbf{2 8}^{\text {th }}$. In most years, Emilio will therefore celebrate his birthday one day before his older sister celebrates hers. In leap years, Emilio will celebrate his birthday two days before his sister. And in the particular leap year in question, we must conclude that the twins are living on either side of the International Date Line. Let us say that Emilio is in Japan and Elisa is in the US. When she calls, it is the morning of February $\mathbf{2 8}^{\text {th }}$ in Japan, but still the evening of February the $\mathbf{2 7}^{\text {th }}$ in the US. Three days later, on the morning of March the $\mathbf{2}^{\text {nd }}$ in Japan, Emilio calls Elisa to wish her a happy birthday. It is the evening of March the $1^{\text {st }}$ in the US.
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## Round 18: Plain Ridiculous!

The ten puzzles in this round all share an element of the absurd and exist somewhere on the boundary between riddles and jokes. We would advise against spending too much time puzzling them out!


## 1. Insomnia

How is it possible for a person to go eight days in a row without sleeping?

## 2. Heavy Rain

A man walks two miles under heavy rain on an open road. He doesn't have a hat, or hood, or umbrella, or anything else in fact with which to cover his head. And yet somehow, his hair doesn't get wet.

How is this possible?

## 3. Take Five

How many times can you take 5 from 25 ?

## 4. Imprisonment

When you awake, you find that you have somehow been transported to a room without any windows or doors. The walls, the ceiling and the floor are made of impenetrable stone. There is no equipment in the room to help you escape, and yet you manage to do so. How?

## 5. Nine Days a Week

Can you name four days which start with the letter ' T '?

## 6. A New Traffic Light

In which situation do you start at red and stop at green?

## 7. Anatomical Anomaly?

What word describes a woman who does not have all her fingers on one hand?

## 8. A Riddle by Lewis Carroll

John gave his brother James a box:
About it there were many locks.
James woke and said it gave him pain;
So gave it back to John again.
The box was not with lid supplied,
Yet caused two lids to open wide:
And all these locks had never a key
What kind of a box, then, could it be?

## 9. East Asian Cuisine

Why do Chinese men eat more rice than Japanese men?
10. An Unsolved and Probably Unsolvable Riddle by Lewis Carroll

Why is a raven like a writing desk? ${ }^{2}$

## Answers: Round 18

1. By sleeping during the night.
2. The man is bald.
3. Once, the next time you'd be taking 5 from 20.
4. There are no doors, so you simply walk through the doorway.
5. Tuesday, Thursday, Tomorrow, Today
6. When you're eating a watermelon
7. The phenomenon is so ordinary there isn't a word for it. Like most people, the woman's fingers are divided between two hands.
8. Here is Lewis Carroll's own answer to the riddle:

As curly-headed Jemmy was sleeping in bed,
His brother John gave him a blow on the head;
James opened his eyelids, and spying his brother,
Doubled his fist, and gave him another.
This kind of box then is not so rare;
The lids are the eyelids; the locks are the hair,
And so every schoolboy can tell to his cost,
The key to the tangles is constantly lost.
9. Because there are considerably more Chinese men than Japanese men.
10. Your guess is as good as ours. Lewis Carroll said that he originally intended the riddle to be
without an answer. Nonetheless, there have been a number of notable attempts to provide a satisfying answer. Puzzle expert, Sam Loyd, had the following to say:

My own guess, following the alliterative style which characterizes the entire work, would be "that the notes for which they are noted are not noted for being musical notes"; nevertheless, there is considerable scope for ingenuity and cleverness, as other answers, equally as good or better, might be suggested, like "because Poe wrote on both," "Hills and tales are among their characteristics," "Because they stand on their legs," "Because they conceal their steels" or "Ought to be made to shut up," etc., etc.
*lllustrations

## Round 19: The Great Riddles from Literature



The first two riddles in this round were created by Jonathan Swift, the author of Gulliver's Travels.

## 1. We Are Little Airy Creatures

We are little airy creatures,
All of different voice and features;
One of us in glass is set,
One of us you'll find in jet.
The other you may see in tin,
And the fourth a box within.
If the fifth you should pursue,
It can never fly from you.

## 2. Ever Eating, Never Cloying

Ever eating, never cloying,
All-devouring, all-destroying,
Never finding full repast,
Till I eat the world at last.

The following riddles were created by J.R.R. Tolkien and appear in his book, The Hobbit.

## 3. What Has Roots as Nobody Sees

What has roots as nobody sees,
Is taller than trees,
Up, up it goes,
And yet never grows?

## 4. Thirty White Horses on a Red Hill

Thirty white horses on a red hill,
First they champ,
Then they stamp,
Then they stand still.

## 5. Voiceless it Cries

Voiceless it cries,
Wingless it flutters,
Toothless bites,
Mouthless mutters.

## 6. An Eye in a Blue Face

An eye in a blue face

Saw an eye in a green face.
"That eye is like to this eye"
Said the first eye,
"But in low place,
Not in high place."
7. It Cannot Be Seen, Cannot Be Felt

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 comes first and follows after,
Ends life, kills laughter.
8. A Box without Hinges, Key, or Lid

A box without hinges, key, or lid,
Yet golden treasure inside is hid.

## 9. Alive Without Breath

Alive without breath,
As cold as death;
Never thirsty, ever drinking,
All in mail never clinking.

## 10. No-legs Lay on One-leg

No-legs lay on one-leg, two-legs sat near on three-legs, four-legs got some.

## 11. This Thing All Things Devours

This thing all things devours:
Birds, beasts ,trees, flowers;
Gnaws iron, bites steel;
Grinds hard stones to meal;
Slays king, ruins town,

And beats high mountain down.

## Answers: Round 19

1. The Vowels: A, E, I, O and U
2. Time
3. A Mountain
4. Teeth
5. Wind
6. The Sun Shining on Daisies
7. Darkness
8. An Egg
9. A Fish
10. It is a description of a man sitting on a stool with a fish on a plate in front of him. His cat gets the bones.
11. Time
*llustrations

## Round 20: Outside the Box



## 1. A Curious Purchase

A family goes to a hardware store, searching for something that will put the finishing touch to their new house. They find what they're looking for and it's priced as follows:

## 1 for $\$ 1$

10 for $\$ 2$
100 for $\$ 3$
They buy 212 and are still charged only $\$ 3$.
What did they buy?

## 2. Tunnelling Prisoners

A man is imprisoned in the king's dungeon. The walls are made of stone and the oak door is permanently locked. High up on one of the walls is an unbarred window. There is no way of climbing the walls, and there is no furniture in the room that the man can stand on to reach it. The man abandons hope of escaping through it and decides to try and dig his way out. He makes slow progress and calculates that it will take his entire lifetime to tunnel out. For a few days he abandons this project as well. Suddenly an idea comes to the man, and he begins to dig again.

What is his plan?
3. Four Jolly Men - Another Puzzle by Sam Loyd


Four jolly men sat down to play,

And played all night till break of day.
They played for gold and not for fun,
With separate scores for every one.
Yet when they came to square accounts,
They all had made quite fair amounts!
Can you the paradox explain?
If no one lost, how could all gain?

## 4. Alike in all Things

Two girls are born to the same mother, on the same day, at the same time, in the same month and year, and yet they're not twins. How is this possible?

## 5. An Obstinate Bird

A man buys a parrot from the Great Bazaar. The merchant promises him, "this parrot will repeat every word it hears". Over the following months, the man goes to great lengths to teach the bird to speak. It never says a single word, and yet the merchant was completely truthful. How is this possible?

## 6. The Bookworm



A three-volume novel rests on a bookshelf as pictured above. There are 300 pages in each volume. A bookworm has decided to make the neglected masterpiece its home. It tunnels from the first page of Volume I to the final page of Volume III.

Excluding the covers, how many pages does the bookworm tunnel through in total?

## 7. Inside the Box

Three closed boxes containing marbles are placed in front of you. They are labelled: "black marbles", "white marbles", and "both black and white marbles". However, you know that someone has mischievously switched all of the labels.

If you are only allowed to reach into one box, and remove one marble, which box should you
choose in order to determine the contents of all three boxes?

## 8. Death Sentence

A statesman was sentenced to exile, and his political opponents were keen that the sentence be upheld. The custom of the land however, was to let fate determine the finality of such sentences. Two slips of paper would be placed into a jar, and the statesman asked to select one of them. One of the slips would be marked "Exile", and the other "Pardon".

The evening before the draw, word reached the statesman that his opponents had replaced the "Pardon" slip with another marked "Exile". The statesman would have no opportunity to inform the authorities of what had happened. He would have to draw a single slip from the jar, in full knowledge that it was certain to read "Exile".

By what course of action could the statesman ensure that he received a pardon?

## 9. Calendar Cubes



A teacher keeps two cubes on her desk. Each has six different single-digit numbers printed on it (one on each side of the cube). She is able to arrange the cubes so the day of the month can be displayed each day for her pupils to see.

What digits must be on each cube for the teacher to display every day in the month from 01 to 31.
10. Dot Square

A "dot square" is a set of four dots that together form the corners of a square. How many dot squares appear between the twelve dots in the image below?

Answers: Round 20

1. House numbers; they bought three.
2. He plans to pile up the dirt he clears from his tunnelling until he is able to reach the unbarred window.
3. The four men are not playing cards; they are musicians.
4. They are two of three triplets.
5. The parrot is deaf.
6. 300. Look again at the arrangement of the volumes. If the bookworm begins its tunnel at the first page of Volume I, it will not travel through any pages in that volume, but straight through its front cover into Volume II. The bookworm then tunnels through all 300 pages of Volume II. Finally, it travels through the front cover of Volume II and the back cover of Volume III to arrive at the final page of the trilogy.
1. Draw a marble from the box mislabelled "both black and white". If it is black, you know that the box contains only black marbles. This is enough information to determine that the box mislabelled "white", must contain both black and white marbles; and that the box mislabelled "black", must contain only white marbles.

Similar reasoning applies if the initial marble you draw is white.
8. He must draw one of the slips and immediately destroy or swallow it. The authorities will then have to draw the other slip, and when they see it is marked "Exile", they will assume he drew a slip marked "Pardon".
9. The teacher must use a reversed " 6 " to represent " 9 ".

There are then several possible combinations.
Here is one:
First cube: 0, 1, 2, 3, 4, and 5 .

Second cube: 0, 1, 2, 6 (9), 7, and 8.
10. Eleven. Five small squares are easily visible. However, there are also four medium sized squares, and two large squares.

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## Round 21: The Tale's the Thing: Lateral Thinking Puzzles 2



## 1. Political Intrigue

Two politicians are invited to a bar by one of their political opponents. When they arrive, their host is already waiting, and there is a cocktail pitcher on the table. The two politicians pour themselves drinks. To relax his nerves, the first politician drains his in one go. The second politician enjoys his over the course of the evening. As they leave the restaurant, the second politician collapses.

Can you explain why?

## 2. Disappearing Act

A horse jumped over a tower and landed on a man. The man disappeared.
How could this have happened?

## 3. An Odd Assembly of Objects

You are walking across a field in the countryside when you notice an unusual collection of items lying in a heap on the ground. There are nine pieces of coal, a carrot, a scarf, and two snapped branches.

What are they doing there?

## 4. A Stranger in the Car

A man and woman were driving quickly along a road. The man suddenly pulled the car over, told the woman he would come straight back and rushed into a large building. The doors of the car were all locked, and all of the windows were up, and yet when then man returned, the woman was unconscious, and there was a stranger in the car with her. The man embraced the stranger.

Who is the stranger and how did they enter the car?

## 5. Card Sharks

A police unit raids a house to arrest a suspected criminal. They have no idea what the man looks like, but they know that he is currently inside the house, and that his name is Michael.

The raid interrupts a game of poker. Around the table are an electrician, a carpenter, a fireman, and a politician. The police immediately know that the carpenter is Michael and arrest him without asking any questions of the others.

How did they correctly identify the suspect?

## 6. The Doomed Hunter

A hunter in Alaska sights his prey and takes up his gun. He is so deep into the wilderness that no other humans will even hear the shot. He aims carefully, and fires. It is a perfect shot, but he instantly realizes it was a serious mistake. Minutes later he is dead.

What happened?

## 7. Mountain Cabin

A cabin is discovered at the edge of a mountain precipice. The door has been locked from the inside and needs to be forced open. Fifty people are found dead inside. They had blankets and large quantities of food and water.

How did they die?

## 8. A Busy Platform

A train pulls in alongside a crowded platform. It is precisely on schedule. The train is not full, and yet nobody boards it. All trains that stop at the platform travel to the same destinations. Why then did nobody board the train?

## 9. Waiting at Home

This puzzle may be more difficult for readers outside of North America.
A man leaves home and starts running. He takes three left turns. When he returns, he sees two men wearing masks. They have been expecting him.

Who are they?

## 10. The True Champion

In a closely contested race, the judges call for a photo finish to determine the winner. It becomes clear that Alfonso crossed the line in first place, just ahead of Samuel. None of the judges dispute this, and yet they award the trophy to Frankie, who crossed the line in third place. Alfonso and Samuel have not broken the rules or done anything that might prejudice the judges against them.

So why does Frankie receive the trophy?

## Answers: Round 21

1. He had been poisoned. The poison was in the pitcher's ice cubes, and as the first politician finished his drink before the ice could melt, he was unaffected.
2. It is a game of chess: a knight has jumped over a castle to take a pawn.
3. The items were part of a snowman that has now melted.
4. The woman was in labor, and they were rushing to the hospital. By the time the man returned to the car with a doctor, the woman had given birth, and then passed out through fatigue. The stranger is the man's child.
5. Michael is the only man in the room. The electrician, fireman and politician are all women.
6. He fired the shot from within a snow covered ravine. It causes an avalanche.
7. It is an aircraft cabin, and the plane crashed into the mountain.
8. It is a model train, and the platform is crowded with figurines.
9. The Catcher and the Umpire. The man is playing baseball.
10. Alfonso and Samuel are horses. Frankie is riding Alfonso, and is thus the first person to cross the finish line.
*llustrations

## Round 22: Contradictories



## 1. Light as a Feather

What is as light as a feather but cannot be held for ten minutes by even the strongest men alive?

## 2. A Never-ending Supply

What is it that the more you take, the more you leave behind?

## 3. An Enemy of Wind

My life can be measured in hours,
I serve by being devoured.
Thin, I am quick.
Fat, I am slow.
Wind is my foe.

## 4. Daily Decapitation

What loses a head in the morning, but gains a head at night?

## 5. Travel Companion

I begin my journey when yours is done;
And yet I take you with me.
My companions never have a word for me,
Not even when we part, which is always forever.
What am I?

## 6. World Traveler

What can travel around the world while staying in a corner?

## 7. Tireless Stamina

What always runs and never walks,
Often murmurs, never talks,
Has a bed but never sleeps,
Has a mouth but never eats?
8. Stationary Speed

Two bodies I have,
Though both joined in one.

The more still I stand,
The faster I run.

## 9. A Lonely Mute

I have an end but no beginning, a home but no family, a space but no room. I never speak, and yet there is no word I can't produce.

## 10. Question and Answer

Question:
What does man love more than life,
And fear more than death or mortal strife?

Answer:
What the poor have, the rich require,
And what contented men desire,

What the miser spends and the spendthrift saves
And all men carry to their graves.

1. One's Breath
2. Footsteps
3. A Candle
4. A Pillow
5. A Hearse
6. A Stamp
7. A River
8. An Hourglass
9. A Keyboard
10. Nothing
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## Round 23: Coins, Cups and Toothpicks 2

## 1. Adjacent Coins



Arrange five coins in alternating order as above. The challenge is to rearrange them so that the three larger coins are all to the left of the two smaller coins. This can be achieved in four moves.

For each move you must place your index and middle finger on two adjacent coins, one of which is large and one of which is small. You may then move the coins to another location along the line (without switching the two coins around during the move). Good luck!
2. Coin Cross


Arrange six coins in the formation shown.
How can you create two rows of four coins each, by moving only one coin?

## 3. Counterfeit Coin

There are nine coins in front of you. Although they appear to be identical, you know that one of them is a counterfeit, and slightly lighter than the others.

Fortunately, you have a balance scale with which to weigh the coins against each other.
How many weighings are necessary to identify the counterfeit?

## 4. Trapped Coin



A coin is dropped into an empty bottle and a cork is then inserted in the neck of the bottle. How is it possible to remove the coin without taking out the cork, or breaking the bottle?

## 5. Half-Full or Half-Empty?

There is a glass of milk on the kitchen table, and a brother and sister are arguing about whether it is half-full, or half-empty. The glass is a right cylinder.

Without any measuring implements and without removing any milk from the glass, how can they easily determine who is correct?

## 6. Three Squares

How can you remove six toothpicks to leave exactly three squares, and at the same time incorporate every remaining toothpick in part of at least one square?


## 7. Coin in a Glass

By moving only two toothpicks, how can you remove the coin from the glass, but still leave the glass in tact?


## 8. Toothpick Mathematics

How can you correct this sum by moving only one toothpick?


## 9. Toothpick Cat - A Puzzle by Martin Gardner

By moving only two toothpicks, how can you change 100 into CAT?

10. Toothpick Giraffe - A Puzzle by Martin Gardner

Here, the challenge is to make the giraffe walk in a different direction by moving only one toothpick.


## Answers: Round 23

## 1. One possible solution:


2. Move the coin at the bottom of the cross two places up.


## 3. Two.

You should divide the coins into three equal piles. Next select two of the piles and place them on either side of the scale. If the scale tips, the counterfeit is among the three coins in the lighter pile; if it does not tip, it is in the pile of coins you haven't yet weighed. You can now put six coins aside.

Of the three remaining coins, select two and place them on either side of the scale. By following the same process of reasoning as before, you will identify the counterfeit.
4. Push the cork into the bottle and shake the coin out.
5. They should tilt the glass until the milk just touches the lip. If the bottom of the glass is visible, then it is less than half-full. If the bottom is still completly covered by milk, then it is more than half-full.
6. Here are two possible solutions.

7. The key here is to push the horizontal toothpick sideways.


## Round 24: Words, Words, Words 3



## 1. A Common Occurrence

What comes occurs once in a minute, twice in a moment but never in a thousand years?

## 2. Cryptic Clothing

Fifteen decades by a tree
Cryptically expresses me

- A garment worn in times of old,

Five letters long, I keep out cold.

## 3. NME

Besides NME, which other three letters can be used to express "enemy"?

## 4. T Word

What begins with $T$, ends with $T$ and has $T$ in it?
5. New Door


How can you make one word from the letters above?

As a whole, I am both safe and secure.
Behead me, and I become a place of meeting.
Behead me again, and I am the partner of ready.
Restore me, and I become the domain of beasts.
What am I?

## 7. Next Letter

What is the next letter in the series below, and why?
$B, C, D, E, G, P, ?$

## 8. An Unusual Word

I know a word of letters three. Add two more, and fewer there will be.

## 9. An Unusual Sentence

What is unusual about the sentence below? ${ }^{3}$
A big cowboy, dancing elegantly for grand hotels in Jersey, knitting lovely mittens nicely on pretty quilted rubber shoes, thought untrained vets would X-ray yellow zebras

## 10. Two Unusual Paragraphs

"If youth, throughout all history, had had a champion to stand up for it; to show a doubting world that a child can think; and, possibly, do it practically; you wouldn't constantly run across folks today who claim that "a child don't know anything." A child's brain starts functioning at birth; and has, amongst its many infant convolutions, thousands of dormant atoms, into which God has put a mystic possibility for noticing an adult's act, and figuring out its purport."

This is the first paragraph from Gadsby, a most unusual work of fiction. What is so unusual about it? It's your job to find out. You should go through the paragraph slowly; word by word, and if you don't spot anything first time around, go through it again. It looks ordinary, but it's missing a particularly important symbol that's normally crucial to writing. With a bit of luck, the solution will dawn on you - it's probably not as difficult as you think. Good luck!

## Answers: Round 24

1. The letter " $m$ "
2. Cloak (CL represents 150 in Roman Numerals)
3. FOE
4. Teapot
5. By rearranging the letters to make "one word".
6. Stable
7. " T ". They all rhyme.
8. Few (it becomes "fewer" when you add "er")
9. The initial letters of each word run through the alphabet in order.
10. The most common letter in the English language, the letter " e ", is entirely absent from both paragraphs. Gadsby is a 1939 novel by Ernest Vincent Wright. The letter "e" does not occur a single time in its 250 pages.
*llustrations

## Round 25: Pure Logic 4



## 1. Cannibal Logic

You find yourself in an unpleasant situation. You are captive to a tribe of cannibals, who have decided that the time has come to eat you. It is their custom to allow captives to speak a few last words before they are eaten. The chieftain of the tribe eloquently explains, "If you make a true statement, we will roast you over the fire. If you make a false statement, we will boil you in a pot".

What can you say to gain your freedom?

## 2. Barrels of Wine and Beer - A Puzzle by Henry Dudeney



A merchant purchases five barrels of wine and one barrel of beer. The volume (in gallons) of each barrel is shown above. He intends to keep the beer for himself, but is keen to profit on the wine. He is soon able to sell all of it to two customers. One of the customers buys twice as much as the other.

Can you determine which barrel contains the beer?

## 3. Burning Ropes

You are given two ropes and a lighter, and told that each rope takes exactly one hour to burn. The ropes do not burn at a uniform speed however - some parts of the rope burn more quickly than others.

How is it possible for you to time exactly 45 minutes?

## 4. An Archaeologist

An archaeologist unearths a coin bearing the inscription " 57 BC ". How does he instantly know that it's a forgery?

## 5. Snail Pace

A snail is at the bottom of a well. Each day it climbs up four feet, but then during the night, it slips down three feet again. If the well is 20 -feet deep, how many days will it take the snail to get out?


## 6. Time Flies

A man is considering how quickly his life has flown by.
He thinks to himself, "the day before yesterday I was 37 , and next year I will be 40 !"
The man has made no error in his calculation. On what day of the year is his birthday?

## 7. The Lost Boarding Pass

100 passengers are boarding a plane with 100 seats. The first passenger in line has lost his boarding pass and chooses a random seat to sit in. Each subsequent passenger takes their assigned seat if it is unoccupied. Otherwise, they take a random unoccupied seat.

What is the probability that the last passenger will find their seat unoccupied?
8. Water and Wine


There are two glasses. One contains water, and the other contains an equal quantity of wine.
A teaspoon of water is removed and mixed into the glass of wine. A teaspoon of the wine-water mixture is then removed and mixed into the glass of water.

Which of the mixtures is now purer?

## 9. Secure Transport

An archaeologist wishes to send a valuable artefact to a museum. However, he has doubts as to the integrity of the couriers, and fears they will keep the artefact for themselves if they get a chance to see it. He has a box, and a selection of locks and their keys, but he knows that the museum curator will not be able to open any of them. If he sends a key along with the box, the courier is sure to look inside.

What plan do he and the curator devise to ensure that the artefact is safely transported?
10. Einstein's Riddle ${ }^{4}$


There are five houses on a small road, and each of them is painted a different color. The inhabitants of the houses are all of different nationalities, own different pets, drink different beverages, and play different sports. One of the inhabitants owns a fish.

The challenge is to deduce who it is from the following fifteen statements:

1. The British man lives in a red house.
2. The Swedish man has a dog.
3. The Danish man drinks tea.
4. The green house is to the left of the white house (from the perspective of someone across the street).
5. The owner of the green house drinks coffee.
6. The person who plays polo has a parrot.
7. The owner of the yellow house plays hockey.
8. The owner of the middle house drinks milk.
9. The Norwegian lives in the first house (furthest to the left).
10. The man who plays baseball lives next to the man who has a cat.
11. The man who has a horse lives next to the man who plays hockey.
12. The man who plays tennis drinks orange juice.
13. The German plays golf.
14. The Norwegian lives next to the blue house.
15. The man who plays baseball has a neighbor who drinks water.

Who owns the fish?

## Answers: Round 25

1. "You will boil me in a pot."
2. The 20-gallon barrel contains the beer.

The merchant sells $x$ gallons of wine to one customer and $2 x$ gallons of wine to the other. Therefore in total, he sells $3 x$ gallons of wine. This means that the five barrels of wine must add up to a number that is divisible by three.

If there are 15 gallons of beer, there are 104 gallons of wine $(16+18+19+20+31) .104$ is not evenly divisible by three however, so we will consider the other five possibilities:

16 gallons of beer means 103 gallons of wine.
18 gallons of beer means 101 gallons of wine.
19 gallons of beer means 100 gallons of wine.
20 gallons of beer means 99 gallons of wine.
31 gallons of beer means 88 gallons of wine.
Since 99 gallons is the only quantity of wine evenly divisible by three, the beer must be in the 20-gallon barrel. One customer bought 33 gallons of wine (the 15 and 18 -gallon barrels) and the other bought 66 gallons (the 16, 19 and 31 -gallon barrels).
3. You should light the first rope at both ends, and the second rope at one end only. The first rope will have burned out completely in 30 minutes $(1 / 2$ the time it takes for the rope to burn out when it is lit at only one end). As things are, the second rope will burn for a further 30 minutes. But as you wish to time just 45 minutes, you should light the other end of the second rope to halve the remaining burn time. When the rope has burned out, 45 minutes will have elapsed in total.
4. The $B C / A D$ dating system could not possibly have been in use before the birth of Christ. The coin must have been minted much later than the inscription suggests.
5. Seventeen days. When the snail reaches the top of the well, it does not slip down again.
6. His birthday is on December 31 ${ }^{\text {st }}$, and he is thinking about it on January $1^{\text {st }}$. The day before his birthday, he was 37 . He then turned 38 on December $31^{\text {st }}$, and the new year began the following day. Therefore, he will turn 39 this year, and 40 the following year.
7. $50 \%$.

When the last passenger boards the plane, there are only two possibilities:

1) The remaining seat is their assigned seat.
2) The remaining seat is the first passenger's assigned seat.

The boarding passengers do not show any preference for either of these seats, and therefore they are equally as likely to be the last remaining seat.

## 8. The mixtures are of equal purity.

We know that there is an equal quantity of liquid in each glass. If we imagine that it is 100 ml , it means that there is always 100 ml of water and 100 ml of wine divided between the two glasses. If $\mathbf{x}$ amount of water is in one glass; $\mathbf{x}$ amount of wine must be in the other. This remains the case regardless of how many times we transfer water and wine between the two glasses.

## Examples:

If one glass contains a mixture of, 82 ml of water and 18 ml of wine, it means that the other glass must contain a mixture of 18 ml of water and 82 ml of wine, and that the mixtures are equally pure.

If one glass contains a mixture of 99 ml of water and 1 ml of wine, it means that the other glass must contain a mixture of 1 ml of water and 99 ml of wine, and that the mixtures are equally pure.
9. The archaeologist places the artefact inside the box and secures it with one of his locks. He sends it via courier to the museum curator, who attaches his own lock to the box and returns it. The archaeologist then removes his lock and sends it back. The curator can now remove his own lock and access the artefact.

## 10. The German owns the fish.

The most effective approach for solving this puzzle is to create a table and take note of the facts as you deduce them.

## Organization of Table

| House Color |  |  |  |
| :---: | :--- | :--- | :--- |
| Nationality |  |  |  |
| Drink |  |  |  |
| Sport |  |  |  |
| Pets |  |  |  |

Complete Table and Solution

| Yellow | Blue | Red |  |
| :---: | :---: | :---: | :---: |
| Norwegian | Danish | British |  |
| Water | Tea | Milk |  |
| Hockey | Baseball | Polo |  |
| Cat | Horse | Parrot |  |

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Thank you,
Peter Keyne and Rudolph Amsel

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## Guess the Initials Quiz

This book presents twenty rounds of Guess the Initials quizzes. The idea is quite simple: A common expression including numbers has been simplified to its minimal form, where only the first letter of each word is retained. For example: $\mathbf{2 4}$ hours in a day, becomes $\mathbf{2 4} \mathbf{H}$ in a D.

The challenge is to decipher what the initials stand for. Solving "initialisms" (or "ditloids" as they are sometimes called) requires a combination of general knowledge, lateral thinking, and patience. It's a great mental workout for people of all ages.


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## Illustrations

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## Notes

$[\leftarrow 1]$
Several answers are possible if you think creatively. Can you come up with two?

## $[\leftarrow 2]$

This Riddle comes from Alice's Adventures in Wonderland. In the chapter "A Mad Tea Party", the Hatter asks Alice "Why is a raven like a writing desk?" When Alice gives up, the Hatter admits that he doesn't have the slightest idea either.

## $[\leftarrow 3]$

It comes from A Little Book of Language by the linguist, David Crystal.

## $[\leftarrow 4]$

This puzzle is frequently attributed to Albert Einstein, and accompanied by a claim that only $2 \%$ of the population are intelligent enough to solve it. There is no evidence to support the attribution or the claim.

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