

Problem 1:

On Wednesday, May 5, 1976, the wicked Simon Legrew was murdered at his home in a Boston suburb. The police were able to place the time of death at between 11:10 and 11:30 PM. They arrested four suspects --- Jeeves, the butler; Fifi, the French maid; Julia, the cook; and Jessica, Mr Legrew's private secretary. Under questioning, the four suspects made the following statements:

Jeeves: I didn't do it. Jessica did it. Mr Legrew was blackmailing Jessica. Fifi and I were watching television together from 10:10 PM until 12:30 AM.

Fifi: I'm innocent. Jeeves and I were watching television together at the time of the murder. Jessica was being blackmailed. I saw Jessica speaking to Mr Legrew at 9:30 PM on the night of the murder.

Julia: I'm innocent. Jessica was being blackmailed. Jeeves murdered Mr Legrew. I saw Jessica leave the house at 10:00 PM.

Jessica: I did not kill Mr Legrew. I was not being blackmailed. I was in Chicago during the entire night of the murder. Fifi is the murderer.

Each of the four suspects made two true statements and told two lies.

Who killed Simon?

Problem 2:

Four men were asked about their yearly incomes. Their names were Earl, Moe, Luis, and Randy and their professions are architect, carpenter, plumber, and mason (not necessarily in that order). Each made two statements, but the only statements whose correctness can be depended on are those in which the speaker specifically mentions his own profession. Other statements may or may not be true.

Earl: The plumber makes three times as much as the carpenter. The architect makes more money than I do.

Moe: The carpenter makes more money than the plumber. Luis is either the mason or the architect.

Luis: I make more than the architect. The carpenter makes less than each of the others.

Randy: The plumber makes twice as much as the carpenter. I make more than the mason.

Match each person with his profession.

Problem 3:

Three women (Abby, Janice, and Linda) and two men (Martin and Roberto) are a singer, a dancer, a comic, a television writer, and a theatrical agent, although not necessarily in that order.

Abby said: I'm not the comic. The writer and the dancer are happily married. The singer and the agent are engaged to be married.

Janice said: The singer is my cousin. The writer and the dancer are siblings. The comic and the agent share an apartment.

Linda said: I am not the writer. The singer and the agent hate each other. The dancer and the comic frequently work together.

Martin said: The singer owes me \$10. The writer and the dancer are not related, and have never met. The comic and the agent are next-door neighbors in an apartment house.

Roberto said: The singer saved my life once. The agent lives alone in an old mansion. The dancer and the comic have never met.

If the only certainty is that every statement in which an individual alludes to his or her own profession is true, who is who?

Problem 4:

Probably the first real evidence of the existence of an Abominable Snowman is a photograph taken by the renowned mountaineer Sir Hilary Edmund and his party.

Before the photograph was developed, Sir Hilary was asked to describe the beast: "It was over 7 feet tall, with long white fur, and 6 toes on each foot", replied Edmund.

"He's a liar", objected famed Sherpa guide Nenzing Torkay, grinning. "The Snowman has no fur at all, is under 5 feet tall, and has hooves".

The other three members of the expedition also disagreed in their descriptions.

Monte Everisto said that the Snowman was 6 feet tall and had long white fur and hooves.

Matty Horne claimed the Snowman was over 7 feet tall, had brown fur, and had 5 toes on each foot.

And Snowsov "Killer" Manjaro estimated the beast's height at under 5 feet and attributed brown fur and 6-toed feet to the creature.

The discrepancies in the descriptions were probably due to the fact that the beast was sighted during a severe snowstorm. When the picture was developed, it proved that each of the five mountain climbers was correct about exactly one aspect of the Snowman's appearance.

What does an Abominable Snowman look like?

Problem 5:

Three boys, Pedro, Quincy, and Ralph, and their sisters, Sandy, Trixie, and Vera (not necessarily in that order), had chickens for pets.

Last week was an unusual one. Each chicken laid as many eggs as its owner owned chickens. Quincy had three times as many chickens as his own sister, and had eight more chickens than Ralph's sister. Furthermore, by the end of the week, Quincy had collected 56 more eggs than Pedro; Ralph had collected 52 more than Sandy; and Pedro had collected as many eggs as Sandy and Trixie together.

How many chickens did each of the six people own? Who was whose sister?

Problem 6:

Magician: Select any number from 1 to 12, but do not tell me what number you have selected. Now choose another number from 1 to 12, but this time tell me the number.

Subject: 4.

Magician: Fine. Now, starting with 4 and proceeding in a counterclockwise direction, I will tap the numbers on the face of my watch, one at a time. When I tap the 4, say to yourself the number you originally selected; with each succeeding tap I make, you add 1 to your number. Stop me when you reach 16. I will then be pointing to the number you selected.

As usual, the magician's prediction was realized.

Explain why the trick works. What would the magician have said if the second selected number had been a number other than 4?

Problem 7:

According to the terms of the last will and testament of J P Moneybags, his entire fortune (which turned out to be worth \$2,518,000) was to be divided equally (in exact multiples of \$1000) among all of his direct descendants who were present at the conclusion of his funeral. The excess, if any, was to be donated to the Moneybags Home for Retired Mathematicians.

Mendel Giant, the director of the home, attended the funeral to determine how well the institution would make out.

Ten minutes before the funeral was scheduled to begin, only three heirs were present.

"I guess that means we'll get \$1000", said Giant.

Just then another heir entered.

"Good", said Giant. "That means \$2000 for us".

One minute later a fifth heir entered.

"\$3000", Giant mumbled.

As the funeral was about to begin, three more heirs came in.

"Terrific", uttered Giant. "Now we'll get \$6000".

During the funeral, three more heirs entered, one at a time. With each one, Giant mentioned a new figure. At the entrance of the ninth heir, Mendel said "\$7000"; the tenth heir, "\$8000"; and the final heir "\$10000".

How was Dr Giant able to determine so quickly how much money the home will receive?

Problem 8:

Four married couples, Mr & Mrs White, Mr & Mrs Green, Mr & Mrs Brown, and Mr & Mrs Black had dinner together. They sat at a round table in such a way that men and women alternated, but all the married couples were separated. Mrs White sat between Mr Green and Mr Black, with the latter one sitting to the right of Mrs White. Mr White sat next to Mrs Black.

Who was sitting to the right of Mrs Green?

Problem 9:

There are three dogs and three cats that have to be transported across a river: a big dog, a medium dog, and a small dog, a big cat, a medium cat, and a small cat. The boat can carry two animals at a time, and all of the animals can row.

The medium dog cannot be left alone with either of the other dogs, nor can the medium dog be transported with another dog, because if the two are by themselves they will fight. The big dog will not fight with the small dog. Also, the medium cat cannot be left alone with either of the other cats, nor can the medium cat be transported with another cat for the same reason, and the big cat never fights with the small cat.

To make matters worse, if there are ever more dogs than cats together on the shore, the dogs will fight with the cats.

How can the animals get across the river without a fight breaking out?

Problem 10:

A farmer, his son and daughter and their pets need to cross a river. The pets are a fierce dog, two hamsters, and two rabbits. There is a small two-seater boat that they can use. The boat can hold two people, or one person and a dog, one person and two hamsters, or one person and two rabbits. All three people can row the boat, but none of the animals can.

If the farmer is not around, the dog will bite everybody and everything.

If the son is not around, the daughter will tease the hamsters.

If the daughter is not around, the son will tease the rabbits.

The hamsters and the rabbits get along fine with each other.

How can everyone cross the river without any biting or teasing?

Problem 11:

A farmer was trying to cross a river in a boat which held him and two items, to be chosen from two wolves, one dog, one goat, and one bag of grain. When the farmer was not around, either wolf would eat the dog or the goat, the dog would eat the goat, and the goat would eat the grain (if any of those opportunities arose).

How can the farmer transport all five items across the river to his home?

Problem 12:

"I hear some children playing in the back yard", said Jones, a graduate student in mathematics. "Are they all yours?"

"Heavens, no", exclaimed Professor Smith, the eminent number theorist. "My children are playing with friends from three other families in the neighborhood, although our family happens to be the largest. The Browns have a smaller number of children, the Greens have a still smaller number, and the Blacks have the smallest of all".

"How many children are there altogether", asked Jones.

"Let me put it this way", said Smith. "There are fewer than 18 children, and the product of the numbers of children in the four families happens to be my house number, which you saw when you arrived".

Jones took a notebook and pencil from his pocket and started scribbling. A moment later he looked up and said, "I need more information. Is there more than one child in the Black family?"

As soon as Smith replied, Jones smiled and correctly stated the number of children in each family.

Knowing the house number and whether the Blacks had more than one child, Jones found the problem trivial. It is a remarkable fact, however, that the number of children in each family can be determined solely on the basis of the other information given above!

Problem 13:

A group of airplanes is based on a small island. The tank of each plane holds just enough fuel to take it halfway around the world. Any desired amount can be transferred from the tank of one plane to the tank of another plane while the planes are in flight. The only source of fuel is on the island, and for the purposes of the problem it is assumed that there is no time lost in refueling, either in the air or on the island.

What is the smallest number of planes that will ensure the flight of one plane around the world on a great circle, assuming that the planes have the same constant ground speed and rate of fuel consumption and that all planes return safely to their island base?

Problem 14:

Ms. White, Ms. Green, Ms. Brown and Ms. Black made statements regarding their ages:

Ms. White: I am the oldest.

Ms. Green: I am neither the oldest nor the youngest.

Ms. Brown: I am not the youngest.

Ms. Black: I am the youngest.

Knowing that one of them lied (and three made true statements), determine who is youngest and who is oldest.
