Logical Puzzles

The puzzles are marked with stars (☆) that show the degree of difficulty of the given puzzle.

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Old Masters ☆

Three friends Pablo, Edvard, and Henri are talking to each other about the art collection of Leonardo. Pablo says: "Leonardo has at least four paintings of Rembrandt." Edvard says: "No, he has less than four paintings of Rembrandt." "According me," says Henri, "Leonardo has at least one Rembrandt."

The Question: If you know that only one of the three friends is right, how many Rembrandts does Leonardo possess?

The Answer: ***Click here!...***

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The Wolf, the Goat, and the Cabbage ☆

A man has a wolf, a goat, and a cabbage. He must cross a river with the two animals and the cabbage. There is a small rowing boat, in which he can take only one thing with him at a time. If, however, the wolf and the goat are left alone, the wolf will eat the goat. If the goat and the cabbage are left alone, the goat will eat the cabbage.

The Question: How can the man get across the river with the two animals and the cabbage?

The Answer: ***Click here!...***

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Sock Search

In your bedroom, you have a drawer with 2 red, 4 yellow, 6 purple, 8 brown, 10 white, 12 green, 14 black, 16 blue, 18 grey, and 20 orange socks. It is dark in your bedroom, so you cannot distinguish between the colors of the socks.

The Question: How many socks do you need to take out of the drawer to be sure that you have at least three pairs of socks of the same color?

The Answer: ***Click here!...***

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Absurd Answers

Here are three answers:

A. Answer A
B. Answer A or B
C. Answer B or C

The Question: There is only one correct answer to this question. Which answer is this?

The Answer: ***Click here!...***

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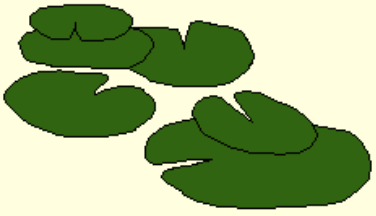
Growing Water Lily



In the middle of a round pool lies a beautiful water lily. The water lily doubles in size every day. After exactly 20 days, the lily will cover the complete pool.

The Question: After how many days will the water lily cover half of the pool?

The Answer: ***Click here!...***

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Jolly Jugs

You are standing next to a well, and you have two jugs. One jug has a content of 3 liters and the other one has a content of 5 liters.

The Question: How can you get just 4 liters of water using only these two jugs?

The Answer: ***Click here!...***

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Turning Cards ☆☆☆

The following four cards sit on a table:

Each card has a digit on one side and a letter on the other side.

The Question: Which cards should you turn around to test the following statement: "when there is a vowel on one side of a card, then there is an even digit on the other side"**?**

The Answer: ***Click here!...***

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Guess What ☆☆☆

Martin has one of the numbers 1, 2, or 3 in mind. Sophie is allowed to ask one question to Martin to find out which of these three numbers he has in mind. Martin will answer this question only with the answers "yes", "no", or "I don't know".

The Question: Which question should Sophie ask Martin to find out in one time which number he has in mind**?**

The Answer: ***Click here!...***

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Thoughtless Thief ☆☆☆

A rather silly car thief stole, without knowing it, the car of the chief of police. The police immediately started an investigation and based on witness depositions, four suspects were arrested that were seen near the car at the time of the crime.

Because the chief of police took the case very seriously, he decided to examine the suspects personally and use the new lie detector of the police station. Each suspect gave three statements during the examinations, which are listed below:

Suspect A:

1. "In high school, I was in the same class as suspect C."
2. "Suspect B has no driving license."
3. "The thief didn't know that it was the car of the chief of police."

Suspect B:

1. "Suspect C is the guilty one."

2. "Suspect A is not guilty."
3. "I never sat behind the wheel of a car."

Suspect C:

1. "I never met suspect A until today."
2. "Suspect B is innocent."
3. "Suspect D is the guilty one."

Suspect D:

1. "Suspect C is innocent."
2. "I didn't do it."
3. "Suspect A is the guilty one."

With so many contradicting statements, the chief of police lost track. To make things worse, it appeared that the lie detector did not quite work yet as it should, because the machine only reported that exactly four of the twelve statements were true, but not which ones.

The Question: Who is the car thief**?**

The Answer: ***Click here!...***

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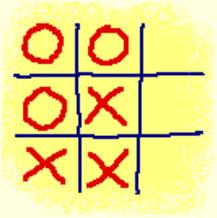
Tick-Tack-Toe



David and Angela play a game of tick-tack-toe. In this game, the players try to get three circles or three crosses in a row (horizontal, vertical, or diagonal).

They follow the following rules:

- A player always tries to win: if a player can place his own symbol (X or O) in a row that already contains two of his own symbols, he will do so.
- A player always tries to avoid that his opponent wins: if a player can place his own symbol (X or O) in a row that already contains two of the symbols of his opponent, he will do so.

Of course, the first rule has precedence over the second rule, because the game can be won in this way.

In the game shown on the right, six moves have been made. David plays with crosses (X) and Angela plays with circles (0). However, we do not know who started the game.

The Question: Who will win this game**?**

The Answer: ***Click here!...***

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The Round Table

Yesterday evening, Helen and her husband invited their neighbors (two couples) for a dinner at home. The six of them sat at a round table. Helen tells you the following:

- "Victor sat on the left of the woman who sat on the left of the man who sat on the left of Anna.

- Esther sat on the left of the man who sat on the left of the woman who sat on the left of the man who sat on the left of the woman who sat on the left of my husband.
- Jim sat on the left of the woman who sat on the left of Roger.
- I did not sit beside my husband."

The Question: What is the name of Helen's husband**?**

The Answer: ***Click here!...***

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Happy Handshaking ☆☆☆

Jack and his wife went to a party where four other married couples were present. Every person shook hands with everyone he or she was not acquainted with. When the handshaking was over, Jack asked everyone, including his own wife, how many hands they shook. To his surprise, Jack got nine different answers.

The Question: How many hands did Jack's wife shake**?**

The Answer: ***Click here!...***

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Lighting Bulb ☆☆☆

A light bulb is hanging in a room. Outside of the room, there are three switches, of which only one is connected to the lamp. In the starting situation, all switches are 'off' and the bulb is not lit.

The Question: If it is allowed to check in the room only once to see if the bulb is lit or not (this is not visible from the outside), how can you determine with which of the three switches the light bulb can be switched on**?**

The Answer: ***Click here!...***

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Apples and Pears ☆☆☆

Tom has three boxes with fruits in his barn: one box with apples, one box with pears, and one box with both apples and pears. The boxes have labels that describe the contents, but none of these labels is on the right box.

The Question: How can Tom determine what each of the boxes contains, by taking only *one* piece of fruit from *one* box**?**

The Answer: ***Click here!...***

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Fun with Fuses ☆☆☆

Assume that you have a number of long fuses, of which you only know that they burn for exactly one hour after you lighted them at one end. However, you do not know whether they burn with constant speed, so the first half of the fuse can be burnt in only ten minutes while the rest takes the other fifty minutes to burn completely. Also, assume that you have a lighter.

The Question: How can you measure exactly three quarters of an hour with these fuses**?**

A Hint : ***Click here!...***

A 2nd Hint : ***Click here!...***

The Answer: ***Click here!...***

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Family Fuss ☆☆☆

At a family party, a grandfather, a grandmother, two fathers, two mothers, four children, three grandchildren, one brother, two sisters, two sons, two daughters, one father-in-law, one mother-in-law, and one daughter-in-law, sit at a table.

The Question: At least how many people are sitting at the table**?**

The Answer: ***Click here!...***

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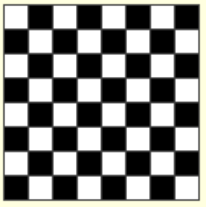
Chessboard Chunks ☆☆☆



On the right, you see a paper with a chessboard print on it. We want to cut the chessboard paper into pieces (over the lines!) such that each piece has twice as much squares of one color than of the other color (i.e. twice as much black squares as white squares or twice as much white squares as black squares).

The Question: Is it possible to do this**?** Give a proof**!**

The Answer: ***Click here!...***

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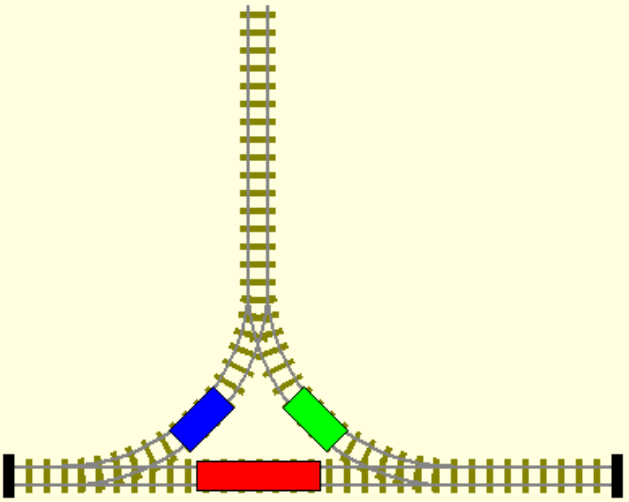
Wagon Works ☆☆☆

On the right, you see a small shunting-yard with two wagons (blue and green) and one locomotive (red). The wagons have a length of 5 meters, and the locomotive has a length of 10 meters. The dead end between the buffer-stop and the switch on the lower left has a length of 5 meters (so the

locomotive cannot change tracks on the lower left switch), and the dead end between the switch and the buffer-stop on the lower right has a length of 15 meters. The locomotive can move forward and backward, and can both pull and push wagons.



The Question: How must the locomotive shunt the wagons, to arrive in a situation where the wagons have changed places and the locomotive is back in its starting position?

The Answer: ***Click here!...***

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Little Lies

Richard is a strange liar. He lies on six days of the week, but on the seventh day, he always tells the truth. He made the following statements on three successive days:

Day 1: "I lie on Monday and Tuesday."
Day 2: "Today, it's Thursday, Saturday, or Sunday."
Day 3: "I lie on Wednesday and Friday."

The Question: On which day does Richard tell the truth?

The Answer: ***Click here!...***

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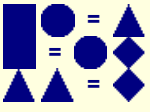
Square Circles

Given are the following three equations:

1. 
2.
3.

The Question: How many circles is a square, if you take the ratios in the three given equations; in other words: how many circles should be on the dots below?

 = ...

The Answer: ***Click here!...***

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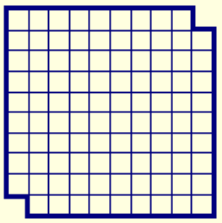
Placing Bricks ☆☆☆



Try to fill the total board (10 by 10, without two opposite corner squares) with bricks of size 2 (▯ and ▭), so no overlaps, no gaps, and no bricks crossing the borders.

The Question: Is it possible to do this? (Proof!)

The Answer: ***Click here!...***

Another Question: How many squares are present in the picture of the board?

Another Answer: ***Click here!...***

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Troubled Traveler ☆☆☆

A traveler, on his way to Eindhoven, reaches a road junction, where he can turn left or right. He knows that only one of the two roads leads to Eindhoven, but unfortunately, he does not know which one. Fortunately, he sees two twin-brothers standing at the road junction, and he decides to ask them for directions.

The traveler knows that one of the two brothers always tells the truth and the other one always lies. Unfortunately, he does not know which one always tells the truth and which one always lies.

The Question: How can the traveler find out the way to Eindhoven by asking just one question to one of the two brothers?

The Answer: ***Click here!...***

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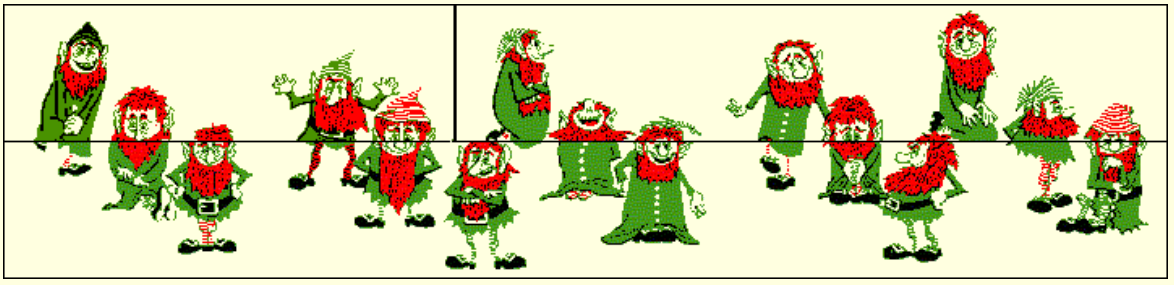
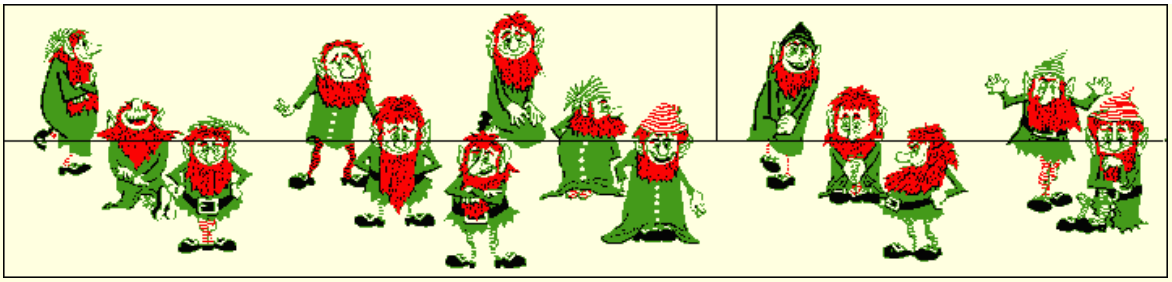
Missing Man ☆☆☆

Look at the figure below, which shows fifteen men. The figure is subdivided into three areas (upper left, upper right, and the bottom half).



By exchanging the upper two parts of the figure, one gets the figure below. This new figure however only shows fourteen men! (If you do not belief what happened here: please print it, cut it, and try it out yourself!)



The Question: Where did the missing man go?

The Answer: ***Click here!...***

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Barbara's Boxes ☆☆☆

Barbara has boxes in three sizes: large, standard, and small. She puts 11 large boxes on a table. She leaves some of these boxes empty, and in all the other boxes, she puts 8 standard boxes. She leaves some of these standard boxes empty, and in all the other standard boxes, she puts 8 (empty) small boxes. Now, 102 of all the boxes on the table are empty.

The Question: How many boxes has Barbara used in total?

The Answer: ***Click here!...***

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Alien Alert ☆☆☆

There are three Federation Officers assigned to take three hostile aliens to "Peace Talks" on another planet. However, they must follow the following rules:

- They have only one small space ship.
- Only two individuals can ride in the space ship each time.
- All Federation Officers can pilot the space ship, but only one alien can pilot the ship.
- If at any time there are both Federation Officers and aliens on a planet, then there must always be more (or the same number of) Federation Officers than aliens on that planet. This is because if there are more aliens than Federation Officers, then the aliens will kill the Federation Officers. Count any individual in the space ship when it is on one planet as being on that planet.
- The one space ship is the only means of transportation. There is no other way to get to the "Peace Talks". No one can exit the space ship while it is in flight.
- To start off, all the Federation Officers and aliens are on the same planet.

The Question: Can all Federation Officers and aliens get to the other planet alive, and if so: how?

The Answer: ***Click here!...***

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At School ☆☆☆

Mr. Dutch, Mr. English, Mr. Painter, and Mr. Writer are all teachers at the same secondary school. Each teacher teaches two different subjects. Furthermore:

- three teachers teach Dutch language;
- there is only one math teacher;
- there are two teachers for chemistry;
- two teachers, Simon and Mr. English, teach history;
- Peter does not teach Dutch language;
- Steven is chemistry teacher;
- Mr. Dutch does not teach any course that is taught by Karl or Mr. Painter.

The Question: What is the full name of each teacher and which two subjects does each one teach**?**

The Answer: ***Click here!...***

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