

Answers to April 21 questions

A How can you throw a ball as hard as you can and have it come back to you, even if it doesn't bounce off anything? There is nothing attached to it, and no one else catches or throws it back to you. Throw the ball vertically upwards.

B There are three envelopes, gold, silver and bronze. One of them contains a £50 note. Each has a statement written on it. Either all statements are false or two are false and one true – but we do not know which is the case.

The statements on the envelopes are:

Gold The money is in this envelope

Silver The money is not in this envelope

Bronze The money is not in the golden envelope.

In which envelope is the money?

In the Silver envelope.

Firstly we do not know if all statements are false, or one true and two false.

If all three are false we have a contradiction. The G statement would mean that the money was not in G, but the B one would mean that the money is in G.

Therefore we must have one true statement. Let's take them one at a time.

If G is true then the money is in G. But then statement S must be false, and that then says that the money is in S. A contradiction, so G is not the true statement.

If S is true then the both G and B are false, but then they are contradictory (G false means money not in G, B false means money is in G). So S is not true.

Therefore the true statement is on the B envelope. This means that the S statement is false, i.e. the money is in Silver. The false G statement just says the money is not in G, which does not contradict anything else.

C What can travel round the world while staying in a corner? A postage stamp.

D You are allowed out of the house briefly, and approach two windowless identical-looking shops with identical doors. Each door is defended by a fierce identical-twin armed guard.

One door leads to a shop with ample food supplies, beer and unlimited toilet rolls. The other leads to an empty store. You are only allowed to enter one of the doors.

One of the twin guards always tells the truth, the other one always lies.

You are allowed only one question of one of the guards. What question should you ask in order to enter the well-stocked shop?

The question to ask either guard is: "If I ask the other guard to tell me which is the door to the well-stocked shop, what would he say." You then go through the other door.

It does not matter which guard you ask this question, or which guard is on the which door.