

The Hat Puzzles

Hat puzzles are logic problems that date back to as early as 1961. A number of players, are each wearing a hat, which may be of various specified colours, normally only two possible colours. Players can see the colours of at least some other players' hats, but not that of their own.

If you come to the Winter weekend for the first time and answer Puzzle 1 which was one tackled at the M500 2016 Mathematics weekend you will get a discount of £15 **OR** a discount of £25 is available for Puzzle 2 also tackled at the winter weekend

Answers should be submitted to publicity@m500.org.uk prior to booking.

Puzzle 1 £15 Discount

The simplest HAT problem involves two players who can see each other's Hats but not their own. Each hat may be either Red or Green. The task is for both players to simultaneously announce the colour of their HAT (which of course they cannot see). What strategy should they adopt to ensure at least one of them gets the answer right?

Puzzle 2 £25 Discount

10 players stand in a line where they can see only the colour of the Hats of the people standing in front of them. Once again each player is wearing either a Red or Green hat. The person at the back who can see all the Hats apart from his own announces his HAT colour first. The person in front of him is the next to announce his Hat colour and so on down the line until the player at the front who can see no Hats calls last.

If they adopt the optimum strategy what is the percentage of correct guesses they will make?