

A Magic Trick

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Abstract

A spectator is invited to shuffle a pack of 52 cards many times and is then asked to secretly pick a number between 1 and 10. The magician displays the cards one at a time and explains that the card in the position of the spectator's secret number becomes the spectator's first chosen card. The spectator will use the value of that chosen card as his new number and repeat the process until the magician runs out of cards. Here, aces are worth 1; Jack, Queen, King are worth 5; and all other cards take their face value. We introduce a magic trick that makes the magician can predict the spectator's last chosen card correctly with high probability about 85%.