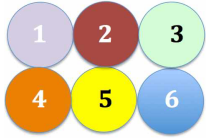


LUCKY NUMBERS



In the Lucky Numbers Game six balls are numbered 1 to 6.

Three balls are chosen at the same time, at random, from the six numbers, in no special order.

When you play this game you get a ticket with 3 numbers written on it.

You win a prize if your 3 numbers match the 3 numbers on the chosen balls.

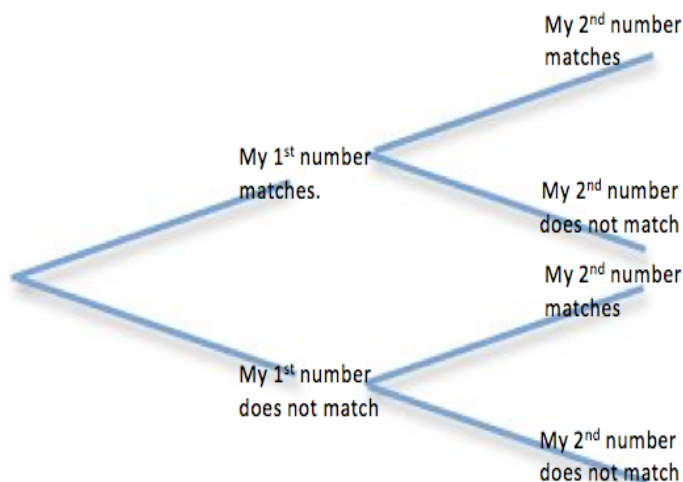
What is your chance of winning a prize?

If you find this problem difficult try the simpler case where 2 balls are chosen from 6 and you get a ticket with 2 numbers.

The probability of winning the 2 lucky number game is $1/15$.

If 100 people pay R10 to play the 3-number game and the prize is R150 would the organisers of this game expect to make a profit? If so why?

HELP



Work with a partner if you can and use this tree diagram. You should be able to get the answer that the probability of winning is $1/15$.

Add more branches for the 3rd number and calculate the probability of winning now.

NEXT When you have succeeded with the 2 ball and the 3 ball game, work out the chances of winning with four balls (from six).

MONTY HALL 1 IN 3 LUCKY NUMBERS

Each player has 3 cards numbered 1, 2 and 3. Either players take turns to be the dealer for a round or there can be one dealer for the game. The dealer chooses one of his cards for the lucky number placing it face down on the table keeping the choice a secret. The players also choose one card and place it face down on the table. The dealer then reveals one of the losing numbers and, with this extra information, the players can change their choices. Which is the better strategy, to change every time or never to change? Players score 1 point if they choose the lucky number. The player with the most points after 10 rounds is the winner.

Try the Monty Hall 2 in 5 Game. Cards are given on pages 2 & 3. See Inclusion Guide.

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