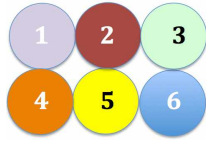


### LUCKY NUMBERS



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.

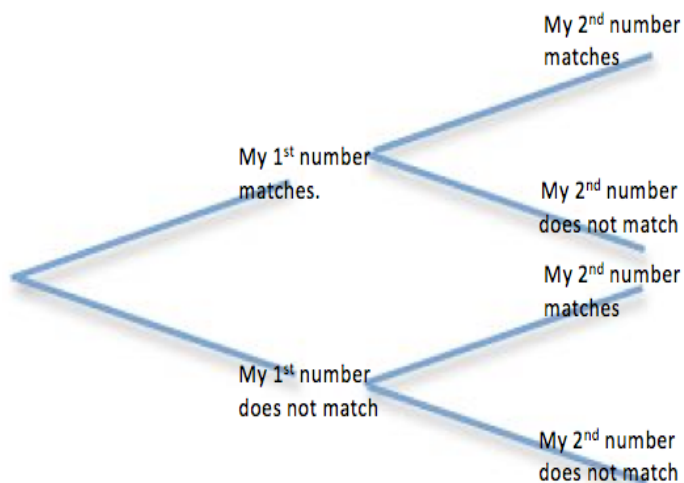
What is your chance of winning a prize?

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 3<sup>rd</sup> 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). What about 4 balls from 10?