

# Winning the Lottery

Each week in the UK we have a lottery that takes place twice weekly. It costs a pound to participate. Seven balls are randomly drawn from 49, six main balls, then a bonus ball. If you match all six main balls you win the jackpot. Various prizes are won for different combinations of the balls, for example, match any three balls out of the main six, and you will win ten pounds.



Think about the chances of the following:

What is the probability of drawing ball number 5?

What is the probability of drawing an even numbered ball? Do you have the same chance of drawing an odd numbered ball?

What chance do you have of drawing a ball containing a digit of 1?

Thirteen is often classed as an unlucky number. Do you think this is true? If 196 balls are drawn in a row, how many 13's would you expect to get? Is any number more likely than another? Below is a table showing the frequencies that the balls have appeared to date.

1-91	2-102	3-90	4-90	5-88	6-94	7-98	8-91	9-94	10-98
11-100	12-95	13-75	14-93	15-87	16-85	17-86	18-92	19-92	20-81
21-79	22-84	23-107	24-91	25-106	26-91	27-99	28-102	29-93	30-97
31-108	32-107	33-98	34-87	35-98	36-95	37-87	38-123	39-82	40-102
41-80	42-85	43-107	44-115	45-99	46-97	47-108	48-97	49-86	

What do you notice about the frequencies? Write a list of the five most popular and least popular numbers. Is 13 an unlucky number? Which number, from 24 and 28, is more likely to come out next? Think about your argument and write a few sentences to convince someone of your answer. If you were going to play the lottery this week, which numbers would you pick and why?

Are you more likely to draw an odd ball then an odd ball, or two even ones? Complete the following diagram to help you decide.

Access the following site <http://lottery.co.uk/random/Default.asp>. This will allow you to simulate a lottery draw. Draw ten sets of numbers and write down the first two. Do the results fit the likelihood's of what you decided from the diagram?

Write a general paragraph about what you have found out about the lottery.

