

## Maths Challenges

### Pick a pair

Choose from these numbers.



1. Pick a pair of numbers.  
Add them together.  
Write the numbers and the answer.

Pick a different pair of numbers.  
Write the numbers and the answer.

Keep doing it.  
How many different answers can you get?

2. Now take one number from the other.  
How many different answers can you get now?

### Next door numbers

Take ten cards numbered 0 to 9.



Arrange the cards like this.



Do it so that no two consecutive numbers are next to each other, horizontally, vertically or diagonally.

There are lots of ways to do it.  
How many ways can you find?

## Maths Challenges

### Rows of coins



1. Take five coins: 1p, 2p, 5p, 10p, 20p.  
Put them in a row using these clues.  
The total of the first three coins is 27p.  
The total of the last three coins is 31p.  
The last coin is double the value of the first coin.
2. Take six coins: two 1p, two 2p and two 5p.  
Put them in a row using these clues.  
Between the two 1p coins there is one coin.  
Between the two 2p coins there are two coins.  
Between the two 5p coins there are three coins.  
  
What if you take two 10p coins as well, and  
between them are four coins?

## Maths Challenges

### Answers

#### Pick a pair

There are six different sums and six different (positive) differences.

- |    |              |    |             |
|----|--------------|----|-------------|
| 1. | $1 + 2 = 3$  | 2. | $2 - 1 = 1$ |
|    | $1 + 4 = 5$  |    | $4 - 2 = 2$ |
|    | $2 + 4 = 6$  |    | $4 - 1 = 3$ |
|    | $1 + 8 = 9$  |    | $8 - 4 = 4$ |
|    | $2 + 8 = 10$ |    | $8 - 2 = 6$ |
|    | $4 + 8 = 12$ |    | $8 - 1 = 7$ |

#### Rows of coins

- 5p, 2p, 20p, 1p, 10p
- 2p, 5p, 1p, 2p, 1p, 5p, or its reverse  
When two 10p coins are also used:  
2p, 5p, 10p, 2p, 1p, 5p, 1p, 10p, or its reverse

#### Next door numbers

For example:

9	1		8	4	
5	7	4	6	0	2
3	0	2	3	9	5
	6	8		7	1