Age 11+ Level ★★
Worksheet 1

1. Missing 9s

Sara makes a list of the whole numbers in ascending order which do not have 9s as any of their digits.

1 is the first number on Sara's list.
What is the 300th number on Sara's list?

2. Even Squares

In the diagram on the right, how many squares (of any size) are there whose entries add up to an even total?

1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20
21	22	23	24	25

3. Double with 1 to 9

Using each of the number cards 1 to 9 once and once only, find two whole numbers, one of which is double the other.

Can you find more than one solution?

4. Tick Tock

Tick's watch runs 2 minutes per hour too slow.
Tock's watch runs 1 minute per hour too fast.
They set them to the same time at midday on Sunday.

The next time they met, one of the watches was one hour ahead of the other. What was the earliest time this could have been?

5. Paying the Bill

Gill is 18 this year. She and I went to a restaurant for lunch to celebrate her birthday.

The bill for lunch for the two of us came to £25.50.
Gill paid the bill by credit card and I left a £2.50 tip in cash.

We agreed to split the total cost equally.
How much did I owe Gill?

These problems are adapted from UKMT (ukmt.org.uk) and WMC (competition.ac) problems.