BrainTwister 1: Digital Sevens

61, 14234, 25, 111111 and 95 are all numbers whose digits add up to a multiple of 7.

What's the next number after 95 whose digits add up to a multiple of 7?

Can you find a pair of consecutive numbers whose digits both add up to multiples of 7?

BrainTwister 2: Piles of money

You are given a heap of N tokens, which you may divide into any number of smaller heaps. Then you receive an amount of money equal to the product of the number of tokens in each heap. (If you keep all the money in one heap, you win £N).

What's the largest amount of money you can win starting with 6 tokens?

What about 10 tokens?

Is there a general best strategy for N tokens?

BrainTwister 3: Page Turner

When printing books, the page numbers are included in the corner of each page.

If a book has 25 pages, how many digits are used in printing all the page numbers?

If a book uses 183 digits in printing all the page numbers, how many pages does it have?

If another book uses 636 digits in printing all the page numbers, how many pages does it have?

BrainTwister 4: Addition Subtraction

It's true that 1 + 2 + 3 = 3 + 2 + 1, and the equation remains true if you remove two of the plus symbols: 1 + 23 = 3 + 21.

Starting from the equation 1 + 2 + 3 + 4 = 4 + 3 + 2 + 1, delete three plus symbols so the equation is still true.

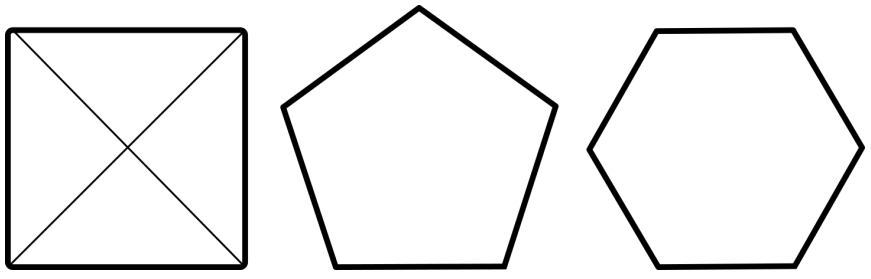
Can you find a way to do the same for 1 + 2 + 3 + 4 + 5 = 5 + 4 + 3 + 2 + 1, but removing a different set of three pluses than you did in the previous case?

BrainTwister 5: Diagonal Lines

A square has two diagonals (lines that run from a corner to a different corner, but not between two corners on the same edge).

How many diagonals does a pentagon have? What about a hexagon?

What kind of regular polygon has a number of diagonals 3 times the number of its vertices?



These are the first five puzzles from New Scientist's puzzle column, which was relaunched in January 2024 as **BrainTwisters**. We're always looking for new puzzles, and if you think you have any that would fit this format (simple, easy-to-explain problems that start with an easy opener and build up in three or four stages to a deeper, more challenging final stage), get in touch using the details below - we pay for submissions used.