

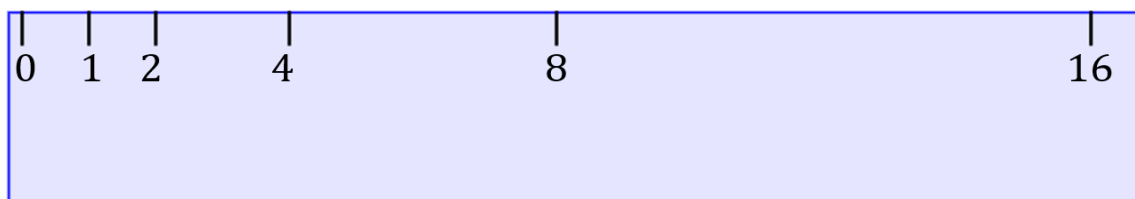
# Writing Stimulating Maths Problems

## For GCSE Students

Some problems for inspiration!

### Problem 1

Amy's ruler is marked at only 0, 1, 2, 4, 8 and 16 cm.



How could Amy's ruler be used to mark off a distance of

- a) 9 cm      b) 14 cm      c) 29 cm      d) 43 cm

Are there any distances that Amy would be unable to measure?

### Problem 2

The third digit of a particular 4-digit number is one less than its last digit. If the number is multiplied by 9, all four of its digits are reversed. What is the four digit number?

The second digit of a different 4-digit number is one less than its first digit. If this number is multiplied by 4, all four of its digits are reversed. What is the four digit number?

### Problem 3

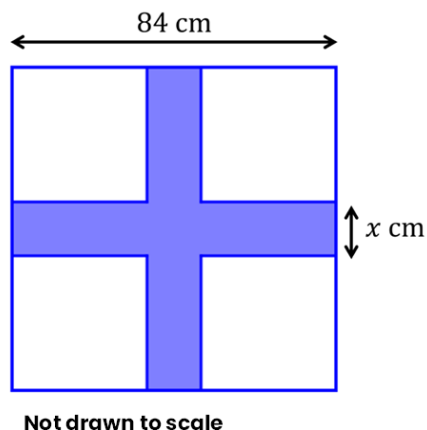
The number 123 is the sum of three consecutive numbers. What are they?

The number 1234 is the sum of four consecutive numbers. What are they?

The number 12345 is the sum of five consecutive numbers. What are they?

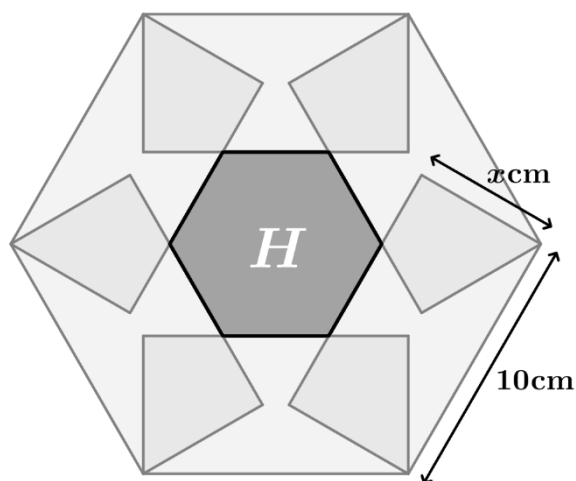
What is the next number  $123\dots n$  that is the sum of  $n$  consecutive numbers? ( $n$  is a single digit whole number).

## Problem 4



The shaded cross is one third of the area of the large square.  
What is the value of  $x$ ?

## Problem 5



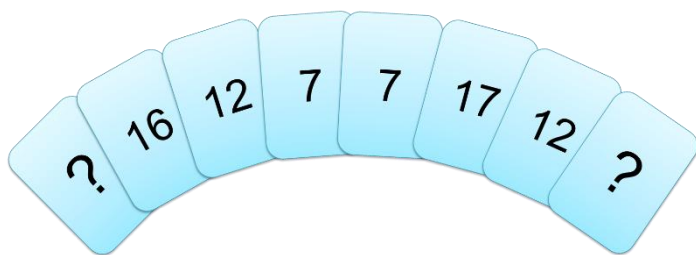
This diagram shows a regular hexagon,  $H$ , with sides measuring 4 cm.

Six identical rectangles are placed around the perimeter of the hexagon in such a way that each pair has one vertex in common.

Each rectangle measures 10 cm by  $x$  cm.

Find the value of  $x$ .

## Problem 6



Two of these cards are face down so you cannot see the numbers on them.

The mode of the numbers on the cards is 12 and the mean is 13.

What are the two hidden numbers?