Here are the full, or partial solutions.

Year 8 and below

The pages of a book are numbered; 1, 2, 3, ...
It takes 852 digits to number all the pages of the book.
What is the number of the last page of the book?

Solution

From page 1 to page 9 we need 9 digits.
From page 10 to page 99 we need $90 \times 2 = 180$ digits. 189 digits in total so far.
We have $852 - 189 = 663$ digits left, and we have up to page 99 so far.
From page 100 to page 999 we would need $900 \times 3 = 2700$ digits.
With 663 digits we can number $663 \div 3 = 221$ three-digit pages.
Starting with page 100 that means we would reach page 220.

Year 9 and above

How many set of three positive integers, a, b, c satisfy the following two conditions simultaneously?

$$6ab = c^2 \quad (1)$$

$$a < b < c \leq 35 \quad (2)$$

Solution

We see from the second condition that the three integers must be different.
From the first condition we can see that c must be a multiple of 6.
So c could be 6, 12, 18, 24 or 30.
Now we need a and b such that $a \times b = \frac{c^2}{6}$. Let's look at the possibilities.

Nº	c	c^2	$c^2/6$	a	b	
1	6	36	6	2	3	Solution
2	12	144	24	2	12	Two digits the same, not a solution
3	"	"	24	3	8	Solution
4	"	"	24	4	6	Solution
5	18	324	56	4	14	Solution
6	"	"	56	7	8	Solution
7	24	576	96	6	16	Solution
8	"	"	96	8	12	Solution
9	30	900	150	6	25	Solution
10	"	"	150	10	15	Solution

So we have nine solutions, in triplets (a, b, c) they are
$(2,3,6)$, $(3,8,12)$, $(4,6,12)$, $(4,14,18)$, $(7,8,18)$,
$(6,16,24)$, $(8,12,24)$, $(6,25,30)$, $(10,15,30)$