



## Champernowne's constant

### Problem 40

An irrational decimal fraction is created by concatenating the positive integers:

0.12345678910**1**112131415161718192021...

It can be seen that the 12<sup>th</sup> digit of the fractional part is 1.

If  $d_n$  represents the  $n^{\text{th}}$  digit of the fractional part, find the value of the following expression.

$$d_1 \times d_{10} \times d_{100} \times d_{1000} \times d_{10000} \times d_{100000} \times d_{1000000}$$