A NUMBER PROBLEM

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The last digit of one number is 6. Take away this digit and put it in front of a given number.

Thus a new number can be formed which will be 6 times bigger than the original one.

What smallest of all possible numbers satisfies this condition?

Simple Solution

6
36
216
1296
7776
46656
.....

1016949 677966

a period with 58 digits

The number to be found is:

10169491525423728813559322033898305084745762711864406779 66 .

Find this number in another way using the Fibonacci terms.

Remark. 2, 8, 34, 144, ···, etc. are third, sixth, ninth, twelfth, ··· (general: F_{3n}, where n = 1, 2, 3, 4, ···), etc. terms of Fibonacci sequence 1, 1, 2, 3, 5, ··· .

The solution by using the Fibonacci numbers is given on the following page.

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