Problem40

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1 Problem 40

1.1 Champernowne's constant

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

0.12345678910111213141516171819202 1...

It can be seen that the 12th digit of the fractional part is 1.

If d_n represents the nth digit of the fractional part, find the value of the following expression.

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

[ ]:
```
str_const = "0"
x = 1
prod = 1
while len(str_const) <= 1000000:
    str_const += str(x)
    x += 1
for i in range(7):
    prod = prod * int(str_const[10**i])
print(prod)
```

```
210
```