Problem G: Last Digit

Background

Give you a integer number N ($1<=n<=2*10^{100}$). Please compute

$$S=1^1+2^2+3^3+\ldots+N^N$$

Give the last digit of S to me.

Input

Input file consists of several Ns, each N a line. It is ended with N=0.

Output

For each N give a line containing only one digit, which is the last digit of S.

Sample Input

```
1
2
3
0
```

Sample Output

```
1
5
2
```