111…1 Squared

We call an integer *Sticks* if its decimal representation contains only digit 1.

Let S(**n**) be the sticks with **n** digits, find the sum of digits of S(n)^2

For example, S(9)^2=12345678987654321, its sum of digits is 81.

Input

Each line contains an integer represents **n**($1 \leq$ **n** $\leq 10^{18}$).

Input is terminated by EOF, and contains at most 100 lines.

Output

For each **n**, print an integer represents the answer.

Example

Input:
9
10

Output:
81
82