

So! The time of the universe is up and it is the dooms day after five hours :-P, and you must stop it. But to do so you have to know the value of the following expression T :

$$T = \left(\sum_{i=1}^n \sum_{j=1}^n \sum_{k=1}^n \sum_{l=1}^n \sum_{m=1}^n (|i-j| * |j-k| * |k-l| * |l-m| * |m-i|) \right) \% 10007$$

Because the secret code that will save the universe from being doomed have something to do with the value of the above expression for some value of n .

Input

The input file contains 1000 lines of inputs.

Each line contains a single integer n ($0 < n \leq 2000000000$).

A line containing a single zero terminates input.

Output

For each line of input produce one line of output. This line contains the value of T .

Sample Input

```
12
20
1001
0
```

Sample Output

```
2199
803
2390
```