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:

$$T = \sum \sum \sum \sum \lfloor (\dots) \rfloor \% 10001$$

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≤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	2199
20	803
1001	2390
0	

Output for Sample Input

Dhaka 2008-2009