2928 - A Puzzle from "Red Matemática" I

Description

On January 29, 2014, Red Matemática proposed the following mathematical challenge on their twitter account (@redmatematicant): "Natalia wrote a number, repeating the digit six 2014 times, and then multiplied that number by itself. She calls Daniel and asks him: what is the sum of the digits of this square?"

Using this interesting puzzle as our starting point, the problem you are asked to solve now is: given a digit d (1 <= d <= 9), form a number n by repeating d exactly k times, where 1 <= k <= 2014, and then calculate n^2. Finally, answer the question: what is the sum of the digits of this square?

Input specification

The input may contain several test cases. Each test case is presented on a single line, and contains two positive integers d and k. The input ends with a test case in which both d and k are zero, and this case must not be processed.

Output specification

For each test case in the input, your program must print the positive integer that represents the sum of the digits of n^2. Each valid test case from the input must generate a single line of output.

Sample input

```
1 1
6 2014
1 1000
0 0
```

Sample output

```
1
18126
8992
```

Hint(s)