Problem G

Power et al.

Input: Standard Input
Output: Standard Output

Finding the exponent of any number can be very troublesome as it grows exponentially ☺. But in this problem you will have to do a very simple task. Given two non-negative numbers **m** and **n**, you will have to find the last digit of $\mathbf{m^n}$ in decimal number system.

Input

The input file contains less than **100000** lines. Each line contains two integers **m** and **n** (Less than **10^101**). Input is terminated by a line containing two zeroes. This line should not be processed.

Output

For each set of input you must produce one line of output which contains a single digit. This digit is the last digit of $\mathbf{m^n}$.

Sample Input

```
2 2
2 5
0 0
```

Output for Sample Input

```
4
2
```

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