

# The last digit re-visited

Pappu was doing the work of his math class about three days but he is tired of make operations a lot and he should deliver his task tomorrow. His math's teacher gives two numbers a and b. The problem consist in find the last digit of the potency of base a and index b. Help Pappu with his problem. You are given two integer numbers: the base a (number of digits d, such that  $1 \leq d \leq 1000$ ) and the index b ( $0 \leq b \leq 922 \cdot 10^{15}$ ). You have to find the last digit of  $a^b$ .

## Input

The first line of input contains an integer t, the number of test cases ( $t \leq 30$ ). t test cases follow. For each test case will appear a and b separated by space.

## Output

For each test case output an integer per line representing the result.

## Example

**Input:**

```
3
3 10
6 2
150 53
```

**Output:**

```
9
6
0
```

**Source limit is 700 Bytes.**