Last Digit Value

Kevin was doing math operations a lot and he should deliver his task tomorrow. His math's teacher gives him two numbers a and b. The problem consists of finding the last digit of the potency of the base a and index b. Help Kevin with his problem. You are given two integer numbers: the base a (0 <= a <= 20) and the index b (0 <= b <= 10^10), a and b both are not 0. You have to find the last digit of a^b.

Input Format

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

Constraints

0 <= a <= 20 0 <= b <= 10^10

Output Format

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

Sample Input 0

```
2
3 10
6 2
```

Sample Output 0

```
9
6
```

Sample Input 1

```
2
1 1
11 2457
```

Sample Output 1

```
1
1
```