

Power of 4

Time Limit : 1s

Given the number $N/(4^X)$. What is the fourth digit from the end, if the number is represented as a decimal number.

Input

The input has several testcases. The first line consists of one integer ($1 \leq T \leq 100$).

The next T lines consists of two integers ($1,000 \leq N_i \leq 9,999$, $10 \leq X_i \leq 2,000,000,000$).

Output

For each case, output the fourth digit from the end of decimal number $N_i/(4^{X_i})$ in a line.

Sample Input

```
2
2017 19
2019 32
```

Sample Output

```
5
1
```