Trailing digits

The story to this problem has trailed off.

Given integers n, m, and k, compute the real number n^{-m} (also known as $1/n^m$) and write it as a decimal number in base 10. You can assume that it won't be a repeating decimal – it can be written with finitely many digits followed by infinite zeros. Print the trailing k digits.

Input

The input contains multiple testcases. Their number $1 \leq T \leq 15$ is in the first line.

Each test case is a single line containing three integers: n, m and k. ($1 \leq n \leq 10^9$, $1 \leq m \leq 10^5$, $1 \leq k \leq 9$)

It is guaranteed that n^{-m} is not a repeating decimal.

Output

Print the last k digits of n^{-m} after which there are only infinite zeros.

If there are less than k digits after the decimal point, do not print the decimal point. You must always print all k digits, even if your output has leading zeros.

Examples

Input:

```
2
2 3 2
2 3 5
```

Output:

```
25
00125
```

2^{-3} = 0.125, so the last two digits are 25.

2^{-3} = 0000.1250000. Ignoring the infinite zeros at the end and the decimal point, the last 5 digits are 00125.