Exponentiation

Enter the base x and the exponent n. Calculate and print out x^n.

Input

The first line of the input consist of a single integer number t which determines the number of tests.

In each of next t lines will contain x and n that separated by a space.

Constraints

- $0 < t \le 1\,000$

Output

For each test case print out x^n. Separate your answers with a new line character.

Example

Input:
```
5
1 7
2 4
0 9
-3 3
5 -2
```

Output:
```
1
16
0
-27
0.040000
```