

Root of a Linear Equation

Given two nonnegative integers a and b , you are to generate the solution of the equation $\mathbf{b \cdot x = a}$.

Input

The number of test cases is given in the very first line. For each test case there is a single line containing two integers a and b without any leading zeroes, separated by a single space.

Tip: For more than 95% of test cases, **int** in C/C++/Java or **longint** in Pascal is enough.

The input file is about 1.4 KB.

Output

For each test case, output a single line containing the root in decimal cyclic notations, or "Invalid Input!!!"(without quotes) if the solution is not unique or the solution doesn't exist. See the example for more details.

The output file is about 1.3MB.

Example

Input:

```
8
1 1
1 2
1 3
1 4
1 6
24 2
15 7
1 89
```

Output:

```
1.0
0.5
0.(3)
0.25
0.1(6)
12.0
2.(142857)
0.(01123595505617977528089887640449438202247191)
```