1132. Square Root

Time limit: 1.0 second
Memory limit: 64 MB

The number x is called a square root of a modulo n (root(a,n)) if $x*x = a \pmod{n}$. Write the program to find the square root of number a by given modulo n.

Input

One number K in the first line is an amount of tests ($K \le 100000$). Each next line represents separate test, which contains integers a and n ($1 \le a, n \le 32767$, n is prime, a and n are relatively prime).

Output

For each input test the program must evaluate all possible values root(a,n) in the range from 1 to $n - 1$ and output them in increasing order in one separate line using spaces. If there is no square root for current test, the program must print in separate line: ‘No root’.

Sample

input	output
5 4 17 3 7 2 7 14 31 10007 20011	2 15 No root 3 4 13 18 5382 14629

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