Circle City



Roy lives in a city that is circular in shape on a 2D plane that has radius r. The city center is located at origin (0,0) and it has suburbs lying on the lattice points (points with integer coordinates). The city Police Department Headquarters can only protect those suburbs which are located strictly inside the city. The suburbs located on the border of the city are still unprotected. So the police department decides to build at most k additional police stations at some suburbs. Each of these police stations can protect the suburb it is located in.

Given the *square of radius*, $d(=r^2)$, of the city, Roy has to determine if it is possible to protect all the suburbs.

Input Format

The first line of input contains integer t; t test cases follow.

Each of the next t lines contains two space-separated integers: d, the square of the radius of the city, and k, the maximum number of police stations the headquarters is willing to build.

Constraints

```
1 \le t \le 10^3
1 \le d \le 2 \times 10^9
0 \le k \le 2 \times 10^9
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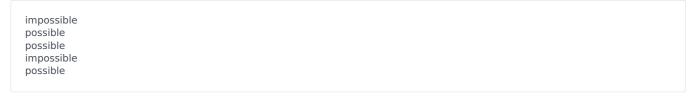
Output Format

For each test case, print in a new line possible if it is possible to protect all the suburbs;, otherwise, print impossible.

Sample Input

```
5
1 3
1 4
4 4
25 11
25 12
```

Sample Output



Explanation

- ullet For d=1, there are 4 points on circumference [(0,1), (0,-1), (1,0), (-1,0)].
- For d=4, there are 4 points on circumference [(0,2), (0,-2), (2,0),(-2,0)].
- For d=25, there are 12 points on circumference [(0,5), (0,-5), (3,4), (-3,4), (3,-4), (-3,-4), (4,3), (-4,-3), (-4,-3), (-5,0)].

Test Case #01: There are ${\bf 4}$ suburbs on the border, while we are allowed to construct max ${\bf k}={\bf 3}$ police stations.

Test Case #02: We can cover all the 4 suburbs as exactly 4 stations are allowed.

Test Case #03: We can cover all the 4 suburbs as exactly 4 stations are allowed.

Test Case #04: It is impossible to cover 12 suburbs, on the border, with 11 police stations.

Test Case #05: We can to cover all 12 suburbs, on the border, with 12 police stations.

Timelimits

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