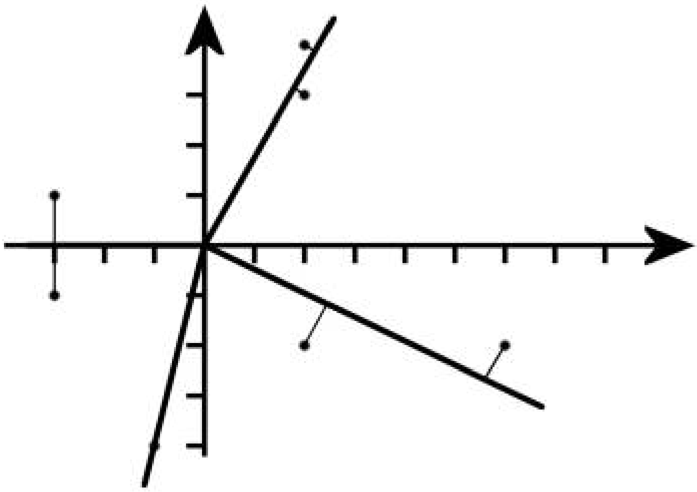
The government in a foreign land is looking into the possibility of establishing a subway system in its capital. Because of practical reasons, they would like each subway line to start at the central station and then go in a straight line in some angle as far as necessary. You have been hired to investigate whether such an approach is feasible. You have been given the coordinates of important places in the city which must lie close to a subway station (possibly the central station). Exactly how close they must lie is determined by another parameter, also given. Your job is to calculate the minimum number of subway lines needed to satisfy the demands of the government. You may assume that any number of subway stations can be built along a subway line.



Input

The first line in the input file contains an integer N, the number of data sets to follow (at most 20). Each set starts with two integers, n and d ($1 \leq n \leq 200$, $0 \leq d < 150$). n is the number of important places in the city that must have a subway station nearby, and d is the maximum distance allowed between an important place and a subway station. Then comes n lines, each line containing two integers x and y ($-100 \leq x, y \leq 100$), the coordinates of an important place in the capital. The central station will always have coordinates $0, 0$. All pair of coordinates within a data set will be distinct (and none will be $0, 0$).

Note: The figure above corresponds to the first sample input

Output

For each data set, output a single integer on a line by itself: the minimum number of subway lines needed to make sure all important places in the city is at a distance of at most d from a subway station.

Sample Input

```
2
7 1
-1 -4
-3 1
-3 -1
2 3
2 4
2 -2
6 -2
4 0
0 4
-12 18
0 27
-34 51
```

Sample Output

```
4
2
```