12: Fruit Fly Frenzy

Level: Medium
Time limit: 1 second

The **via** Kelder has become a hotspot for fruit flies, drawn by the remnants of yesterday's "kelbo"! These tiny pests are swarming everywhere, and you've had enough. It's time to take action. Unfortunately, the only tool at your disposal is an empty cup, that once held some delicious Lellebel beer.

As you scan the kitchen surface in the Kelder, you see a number of fruit flies resting there. This is your moment to strike! Your task is to determine the maximum number of fruit flies that can be trapped by quickly bringing the inverted cup down onto the surface. You will be provided with the diameter of the cup and the exact location of each fruit fly on the surface. For the purposes of this challenge, you can assume that the fruit flies are infinitesimally small and can be modeled as points. You're also fast enough that the fruit flies don't have time to react. A fruit fly that lies within the perimeter of the cup, including exactly on the edge, is considered trapped.

Input

The first number in the input will be an integer $1 \leq n \leq 100$ that denotes the number of fruit fly–trapping scenarios that follow. A blank line comes at the beginning of each scenario. Then follows a line containing an integer $1 \leq m \leq 32$ (the number of fruit flies) and a real number $0 \leq d \leq 32$ (the diameter of the cup). Each of the following m lines will specify the location of a fruit fly in the form of real coordinates $-100 \leq x \leq 100$ and $-100 \leq y \leq 100$.

Output

For each scenario, you are to print the maximum number of fruit flies that can be caught under the cup in that scenario. You may assume that the answer would not change if the diameter of

the cup is increased by at most 10^{-5}.

Sample input 1

```
2

8 3.0
3.0 -1.0
2.0 -1.0
1.0 -2.0
1.0 0.0
0.0 1.0
-1.0 1.0
-2.0 2.0
-1.0 3.0

4 1.5
3.75 1.0
1.0 3.0
2.25 1.0
3.0 1.5
```

Sample output 1

```
4
3
```