UCF "Practice" Local Contest — Aug 24, 2013

Counting Triangles
filename: `counttri`

Triangle Tom is at it again. This time, however, instead of attempting to calculate areas of triangles, he just wants to count how many of them there are. Given a list of possible points, your job will be to help Tom figure out how many different triangles can be formed with those points.

The Problem:

Given a list of points in the Cartesian plane, determine how many triangles (with all angles strictly less than 180°) can be formed with those points.

The Input:

The first line of the file will contain a single positive integer n ($1 \le n \le 50$), denoting the number of test cases in the file. The first line of each test case contains one integer, k ($1 \le k \le 100$), denoting the number of points for that test case. The second line of each test case contains k ordered pairs of integers (separated by spaces) denoting the x and y coordinates of each point, respectively. It is guaranteed that $-100 \le x \le 100$ and $-100 \le y \le 100$ for all coordinates. It is also guaranteed that each point given will be unique.

The Output:

At the beginning of each test case, output "`Test case #t:`", where t is the test case number (starting from 1). Follow this with a statement of the following form:

`x triangle(s) can be formed.`

where *x* represents the distinct number of triangles that can be formed with the given points.

Leave a blank line after the output for each data set. Follow the format illustrated in Sample Output.

(Sample Input/Output on the next page)

Sample Input:

```
2
4
1 1 2 2 3 4 4 4
3
2 4 6 8 7 9
```

Sample Output:

```
Test case #1: 3 triangle(s) can be formed.

Test case #2: 0 triangle(s) can be formed.
```