DWITE '10 R1 #4 - Planting Trees

Time limit: 1.0s **Memory limit:** 64M

DWITE Online Computer Programming Contest, October 2010, Problem 4

You are considering planting trees around your house, but there are only a few good sites to do so. Furthermore, it would be best if the planted trees surrounded the house — that is, the house is within the area formed between all the trees.

The input will contain 5 test cases, an integer $3 \leq N \leq 30$, followed by N lines of integer $X\ Y$ pairs, $-1000 \leq X, Y \leq 1000$, describing possible plant locations. Consider the house to be a single point at location $0, 0$.

The output will contain 5 lines, an integer number of possible valid configurations for exactly 3 trees.

Notes: the order in which the trees are planted does not matter. The house must be **strictly contained** within the area; that is, if the house is exactly on the line between two trees, then this configuration does not count.

Sample Input

```
4
0 1
-1 -1
0 -1
1 -1
6
-1 1
0 1
1 1
-1 -1
0 -1
1 -1
```

Sample Output

```
1
2
```

Problem Resource: DWITE