DAY 2

Problem 1: Crime Statistics (30 points)

A police officer has undertaken the duty to produce statistical data about the crime in a large city. His/her project is to find for a convex area in the city how many of the committed crimes took place there.

INPUT

Your program should read the input from the file INPUT.TXT as follows. The first line contains an integer N (3 <= N <= 1000) which represents the number of corners of the convex area in question. The N following lines contain two integers X and Y each (ranging from -1000 to 1000) separated by a space character, which represent the coordinates of the corners in order around the area's border. The next line contains an integer M (1 <= M <= 10000) which is the number of committed crimes. The following M lines contain two integers X and Y each (ranging from -1000 to 1000) separated by a space character, which represent the coordinates of the location of a crime.

OUTPUT

Your program should write its output to the file OUTPUT.TXT as follows. There is one line containing an integer, which is the number of crimes that took place inside or on the border of the specified area.

EXAMPLE

INPUT.TXT	OUTPUT.TXT
4 0 0 0 100 100 100 100 0 2 50 50 -30 50	1

Time Limit per Test: 1 second