

«Titanic»

Input file:	standard input
Output file:	standard output
Time limit:	1 second
Memory limit:	1024 megabytes

Andrey loves slot machines very much, and this time he found a new one— the «Titanic» slot machine. It has n lifeboats located on a plane, with the i -th lifeboat positioned at the coordinates (x_i, y_i) . There is also a rescue boat that, after starting the slot machine, begins to move at a constant speed from point A to point B .

The rescue boat has a hook that can shoot perpendicularly to the boat's movement in both directions. The hook shoots at an incredibly fast speed, and if a lifeboat is in the path of the hook, it catches it and starts pulling it towards the boat. The hook retracts slowly—if the distance between your boat and the lifeboat at the moment of shooting and catching was d , the rescue boat will travel a distance of d while the hook is retracting. While the hook is retracting, you cannot shoot to save other lifeboats.

Initially, your score of saved lifeboats is 0. The moment the hook is fully retracted, your score increases by 1, and you can shoot again. When the boat reaches point B , the game ends. If the hook manages to retract exactly at that moment, the saved lifeboat is counted; if the hook does not manage to retract fully, the lifeboat is not considered saved, and the score does not increase.

Andrey wondered if there was a catch in the machines and wanted to calculate the maximum score he could achieve. Unfortunately, Andrey decided to find this out through trial and error, so help him—calculate the maximum score that can be achieved in the machine before Andrey spends all your tokens!

Input

Each test consists of several sets of input data. The first line contains a single integer t ($1 \leq t \leq 10\,000$) — the number of input data sets. The following describes the input data sets.

The first line of each data set contains an integer n ($1 \leq n \leq 200\,000$) — the number of lifeboats in the machine.

The next n lines follow. The i -th of them contains two integers x_i, y_i ($-10^9 \leq x_i, y_i \leq 10^9$) — the coordinates of the i -th lifeboat.

In the penultimate line of each data set, there are two integers a_x, a_y ($-10^9 \leq a_x, a_y \leq 10^9$) — the coordinates of point A .

In the last line of each data set, there are two integers b_x, b_y ($-10^9 \leq b_x, b_y \leq 10^9$) — the coordinates of point B .

It is guaranteed that points A and B do not coincide. It is guaranteed that all lifeboats in each input data set are located at pairwise distinct points.

Let N denote the sum of n across all input data sets. It is guaranteed that N does not exceed 200 000.

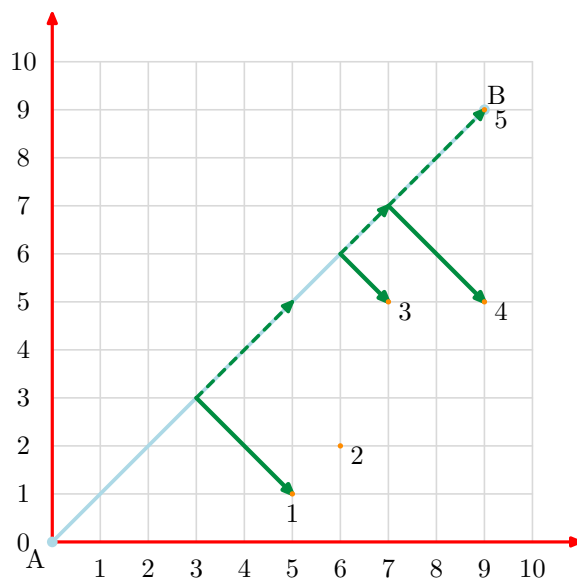
Output

For each set of input data, output the maximum score that can be achieved in the described «Titanic» slot machine.

Example

standard input	standard output
2	4
5	1
5 1	
6 2	
7 5	
9 5	
9 9	
0 0	
9 9	
2	
0 1	
-1 5	
0 0	
-5 0	

Note



In the first test case, our boat is moving from point $(0,0)$ to point $(9,9)$. We pick up the 1st lifeboat while at $(3,3)$ and pull it until we reach $(5,5)$. Next, at $(6,6)$, we catch the 3rd lifeboat and pull it until we reach $(7,7)$. Then we immediately catch the 4th lifeboat and pull it to $(9,9)$. At the final point, we pick up the 5th lifeboat and catch it immediately. After that, the machine stops working, and we have a score of 4.

In the second test case, our boat is moving from point $(0,0)$ to point $(-5,0)$. At point $(0,0)$, we catch the 1st lifeboat and pull it towards us until we reach $(-1,0)$; after that, we can try to catch the 2nd lifeboat, but we won't have enough distance to pull it towards us—the machine will end the game earlier, so the final score is 1.

Scoring

The tests for this problem consist of five groups. Points for each group are awarded only if all tests of the group and all tests of some of the previous groups are passed. Note that passing the tests from the statement is not required for some groups.

Group	Points	Constraints	Required	Comment
		N		
0	0	–	–	Samples
1	21	$N \leq 4000$	–	$a_y = b_y = 0$
2	20	$N \leq 4000$	0, 1	
3	32	$N \leq 100\,000$	1	$a_y = b_y = 0$
4	14	$N \leq 100\,000$	0–3	
5	13	–	0–4	