Codeforces Round 834 (Div. 3)

C. Thermostat

1 second, 256 megabytes

Vlad came home and found out that someone had reconfigured the old thermostat to the temperature of a.

The thermostat can only be set to a temperature from l to r inclusive, the temperature cannot change by less than x. Formally, in one operation you can reconfigure the thermostat from temperature a to temperature b if $|a - b| \geq x$ and $l \leq b \leq r$.

You are given l, r, x, a and b. Find the minimum number of operations required to get temperature b from temperature a, or say that it is impossible.

Input

The first line of input data contains the single integer t ($1 \leq t \leq 10^4$) — the number of test cases in the test.

The descriptions of the test cases follow.

The first line of each case contains three integers l, r and x ($-10^9 \leq l \leq r \leq 10^9$, $1 \leq x \leq 10^9$) — range of temperature and minimum temperature change.

The second line of each case contains two integers a and b ($l \leq a, b \leq r$) — the initial and final temperatures.

Output

Output t numbers, each of which is the answer to the corresponding test case. If it is impossible to achieve the temperature b, output -1, otherwise output the minimum number of operations.

input
10
3 5 6
3 3
0 15 5
4 5
0 10 5
3 7
3 5 6
3 4
-10 10 11
-5 6
-3 3 4
1 0
-5 10 8
9 2
1 5 1
2 5
-1 4 3
0 2
-6 3 6
-1 -4

output
0
2
3
-1
1
-1
3
1
3
-1

In the first example, the thermostat is already set up correctly.

In the second example, you can achieve the desired temperature as follows: $4 \rightarrow 10 \rightarrow 5$.

In the third example, you can achieve the desired temperature as follows: $3 \rightarrow 8 \rightarrow 2 \rightarrow 7$.

In the fourth test, it is impossible to make any operation.