ZOJ Problem Set - 3593

One Person Game

Time Limit: 2 Seconds Memory Limit: 65536 KB

There is an interesting and simple one person game. Suppose there is a number axis under your feet. You are at point *A* at first and your aim is point *B*. There are 6 kinds of operations you can perform in one step. That is to go left or right by *a*,*b* and *c*, here *c* always equals to *a*+*b*.

You must arrive B as soon as possible. Please calculate the minimum number of steps.

Input

There are multiple test cases. The first line of input is an integer $T(0 < T \le 1000)$ indicates the number of test cases. Then T test cases follow. Each test case is represented by a line containing four integers 4 integers A, B, a and b, separated by spaces. ($-2^{31} \le A, B < 2^{31}$, $0 < a, b < 2^{31}$)

Output

For each test case, output the minimum number of steps. If it's impossible to reach point *B*, output "-1" instead.

Sample Input

```
2
0 1 1 2
0 1 2 4
```

Sample Output

```
1
-1
```

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