Pouring water

Given two vessels, one of which can accommodate *a* litres of water and the other - *b* litres of water, determine the number of steps required to obtain exactly *c* litres of water in one of the vessels.

At the beginning both vessels are empty. The following operations are counted as 'steps':

- emptying a vessel,
- filling a vessel,
- pouring water from one vessel to the other, without spilling, until one of the vessels is either full or empty.

Input

An integer *t*, 1<=*t*<=100, denoting the number of testcases, followed by *t* sets of input data, each consisting of three positive integers *a, b, c*, not larger than 40000, given in separate lines.

Output

For each set of input data, output the minimum number of steps required to obtain c litres, or -1 if this is impossible.

Example

Sample input:

```
2
5
2
3
2
3
4
```

Sample output:

```
2
-1
```