

## Problem 1 - Board game in Reply (boardgame)

Some Replyers have come up with a new board game based on the classic fantasy world. In this game two players fight against each other: they prepare and deploy a miniature army of warriors, wizards, monsters and all sorts of creatures from the fantasy world ;)

Each player has  $N$  pawns and each is associated with the values of life, attack and defense.

Each round consists of a fight between two pawns: at the same time, each pawn reduces the opponent's life points by as many points as its own attack minus the opponent's defense. Attacks are repeated until a token reaches 0, or less, life points.

Ex. Let's consider the battle between these pawns:

Player 1 with life: 100, attack: 6 and defense: 2 Player 2 with life: 50, attack: 5 and defense: 5

At each attack, player 1's pawn loses 3 life points (5-2) while player 2's pawn only loses 1 life (6-5). By repeating the attacks in sequence, the pawn of player 2 manages to win over that of player 1.

N.B. If a pawn has a defense equal to or greater than the opponent's attack then they will not suffer any loss of life points.

N.B. A round concluded with both pawns with 0 or less life is considered to have ended in a draw.

### Input data

In each file, the first line contains the number  $T$  of testcases.

Then, for each testcase, there is one line with the following 6 space-separated integers:

1.  $L1$  Life of player 1
2.  $A1$  Attack of player 1
3.  $D1$  Defense of player 1
4.  $L2$  Life of player 2
5.  $A2$  Attack of player 2
6.  $D2$  Defense of player 2

### Output data

The output file must contains  $T$  lines. For each test case in the input file, the output file must contains a line with the words:

Case #t:  $S$

where  $t$  is the test case number (from 1 to  $T$ ) and  $S$  is indicating the outcome of the corresponding round (1 or 2 for the victory of players 1 or 2 respectively, or 0 if the two pieces are defeated at the same time or if the fight is destined to never end).

### Constraints

- $N \leq 1\,000\,000\,000$

- $L1, L2 \leq 1\,000\,000\,000$
- $A1, A2, D1, D2 \leq 1\,000$

## Scoring

- **input 1** :  $T = 1$  and  $L1, L2 \leq 1\,000$
- **input 2** :  $T = 5$  and  $L1, L2 \leq 100\,000$
- **input 3** :  $T = 10$  and  $L1, L2 \leq 500\,000$
- **input 4** :  $T = 15$  and  $L1, L2 \leq 1\,000\,000$
- **input 5** :  $T = 20$  and  $L1, L2 \leq 1\,000\,000\,000$

## Examples

input	output
3 100 6 2 50 5 5 100 4 5 100 4 5 100 4 1 50 5 2	Case #1: 2 Case #2: 0 Case #3: 0