# A. Three swimmers

time limit per test: 1 second
memory limit per test: 512 megabytes
input: standard input
output: standard output

Three swimmers decided to organize a party in the swimming pool! At noon, they started to swim from the left side of the pool.

It takes the first swimmer exactly $a$ minutes to swim across the entire pool and come back, exactly $b$ minutes for the second swimmer and $c$ minutes for the third. Hence, the first swimmer will be on the left side of the pool after $0$, $a$, $2a$, $3a$, ... minutes after the start time, the second one will be at $0$, $b$, $2b$, $3b$, ... minutes, and the third one will be on the left side of the pool after $0$, $c$, $2c$, $3c$, ... minutes.

You came to the left side of the pool exactly $p$ minutes after they started swimming. Determine how long you have to wait before one of the swimmers arrives at the left side of the pool.

## Input

The first line of the input contains a single integer $t$ ($1 \le t \le 1000$) — the number of test cases. Next $t$ lines contains test case descriptions, one per line.

Each line contains four integers $p$, $a$, $b$ and $c$ ($1 \le p, a, b, c \le 10^{18}$), time in minutes after the start, when you came to the pool and times in minutes it take the swimmers to cross the entire pool and come back.

## Output

For each test case, output one integer — how long you have to wait (in minutes) before one of the swimmers arrives at the left side of the pool.

## Example

**input** Copy

```
4
9 5 4 8
2 6 10 9
10 2 5 10
10 9 9 9
```

**output** Copy

```
1
4
0
8
```

## Note

In the first test case, the first swimmer is on the left side in $0, 5, 10, 15, \ldots$ minutes after the start time, the second swimmer is on the left side in $0, 4, 8, 12, \ldots$ minutes after the start time, and the third swimmer is on the left side in $0, 8, 16, 24, \ldots$ minutes after the start time. You arrived at the pool in $9$ minutes after the start time and in a minute you will meet the first swimmer on the left side.

In the second test case, the first swimmer is on the left side in $0, 6, 12, 18, \ldots$ minutes after the start time, the second swimmer is on the left side in $0, 10, 20, 30, \ldots$ minutes after the start time, and the third swimmer is on the left side in $0, 9, 18, 27, \ldots$ minutes after the start time. You arrived at the pool $2$ minutes after the start time and after $4$ minutes meet the first swimmer on the left side.

In the third test case, you came to the pool $10$ minutes after the start time. At the same time, all three swimmers are on the left side. A rare stroke of luck!

In the fourth test case, all swimmers are located on the left side in $0, 9, 18, 27, \ldots$ minutes after the start time. You arrived at the pool $10$ minutes after the start time and after $8$ minutes meet all three swimmers on the left side.

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