F. B-The binary search problem

Time Limit: 1.0 Seconds Memory Limit: 65536K

Xiao Ming likes eating cake. Cake is the best! So we brought some cakes, but unfortunately one of them is poisonous. If we eat the poisonous one, we will die. We have some mouse and the mouse which eat the poisonous cake will be dead in b minutes. So could you tell me how many mouse we need at least if we want to know which is the poisonous one in c mintues?
We suppose that eating cake does not take time and every cake could be eaten by infinite mouse.

Input

The input consists of multiple test cases. The first line contains an integer T, indicating the number of test cases.$(1 \le T \le 1000)$
Each case contains three integer a, b, c.$(0 \le a \le 10 ^{7}, 0 \le b, c \le 10 ^{6})$. a is the number of cakes. b and c is mentioned above.

Output

For each case only output the minimum number of the mouse we need. If we cannt find the answer, output"-1".

Sample Input

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1
1000 1 4
```

Sample Output

```
5
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Source:

Problem ID in problemset: 4167