Survival

You are stranded on an unknown planet with aliens. You have asked for help on Earth but it will take k earth days for humans to rescue you. There is no water on the planet. But fortunately, you have figured out how to make water using two compounds A and B available on the planet. Using 1 unit of A and 1 unit of B you can make 1 unit of water which can help you survive for **one** earth day. A generous alien gave you 1 unit of compound A for free. Since, you need to survive until the rescue team arrives, you will have to engage in trade.

There are two trade options avaible,

- Exchange 1 unit of compound A for p units of compound A

- Exchange q units of compound A for 1 unit of compound B

During each trade, you can use only **one** of the two offers. You can trade any number of times.

Find the minimum number of trades so that you can survive for atleast k earth days on the planet.

Input Format

The first line of the input contains one integer t — the number of test cases. Then t test cases follow.

The only line of the test case contains three integers p, q and k — the number of units of compound A you can buy with one unit of compound A, the number of units of compound A required to buy one one unit of compound B and the number of earth days you need to survive, respectively.

Constraints

$1 \leq t \leq 2 \times 10^4$

$2 \leq p \leq 10^9$

$1 \leq q, k \leq 10^9$

Output Format

For each test case, print the answer: the minimum number of trades you need to survive for atleast k earth days on the planet. The answer always exists under the given constraints.

Sample Input 0

```
5
2 1 5
42 13 24
12 11 12
1000000000 1000000000 1000000000
2 1000000000 1000000000
```

Sample Output 0

```
14
33
```

```
25
2000000003
1000000001999999999
```