

A. Vasya and Chocolate

time limit per test

1 second

memory limit per test

256 megabytes

input

standard input

output

standard output

There is a special offer in Vasya's favourite supermarket: if the customer buys a chocolate bars, he or she may take b additional bars for free. This special offer can be used any number of times.

Vasya currently has s roubles, and he wants to get as many chocolate bars for free. Each chocolate bar costs c roubles. Help Vasya to calculate the maximum possible number of chocolate bars he can get!

Input

The first line contains one integer t ($1 \leq t \leq 100$) — the number of testcases.

Each of the next t lines contains four integers s, a, b, c ($1 \leq s, a, b, c \leq 10^9$) — the number of roubles Vasya has, the number of chocolate bars you have to buy to use the special offer, the number of bars you get for free, and the cost of one bar, respectively.

Output

Print t lines. i -th line should contain the maximum possible number of chocolate bars Vasya can get in i -th test.

Example

input

Copy

2

10 3 1 1

1000000000 1 1000000000 1

output

Copy

13

10000000001000000000

Note

In the first test of the example Vasya can buy 9 bars, get 3 for free, buy another bar, and so he will get 13 bars.

In the second test Vasya buys 1000000000 bars and gets 1000000000000000000 for free. So he has 10000000001000000000 bars.