

## **Polynomial**

You are given and integer M, and 4M integers,  $a_1, a_2, ..., a_M$ ,  $b_1, b_2, ..., b_M$ ,  $c_1, c_2, ..., c_M$ , and  $N_1, N_2, ..., N_M$ . For each  $a_i, b_i, c_i, N_i$  where i is integer from 1 to M, you have to output the maximum integer X such that  $a_i X^3 + b_i X^2 + c_i X <= N_i$ .

#### Format Input

The first line consist of an integer M. The second line consist of M integers,  $a_1, a_2, ..., a_M$ . The third line consist of M integers,  $b_1, b_2, ..., b_M$ . The fourth line consist of M integers,  $c_1, c_2, ..., c_M$ . The fifth line consist of M integers,  $N_1, N_2, ..., N_M$ .

#### Format Output

Output M lines. The i-th line consist of an integer which is the maximum integer X such that  $a_iX^3 + b_iX^2 + c_iX <= N_i$ .

#### Constraints

- $1 \le M \le 10^5$
- $1 \le a_i, c_i \le 5$
- $1 \le b_i \le 10^7$
- $1 \le N_i \le 10^{15}$

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#### Sample Input 1 (standard input)

2	UNIVERSITY
1 2	
2 1	
3 2	
100 60	

#### Sample Output 1 (standard output)

3		
2		

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## Polynomial

Anda diberi sebuah bilangan bulat M, dan 4M bilangan bulat,  $a_1, a_2, ..., a_M, b_1, b_2, ..., b_M, c_1, c_2, ..., c_M$ , dan  $N_1, N_2, ..., N_M$ . Untuk setiap  $a_i, b_i, c_i, N_i$  di mana i adalah bilangan bulat dari 1 sampai M, anda harus mengoutputkan bilangan bulat maksimum X yang memenuhi  $a_iX^3 + b_iX^2 + c_iX <= N_i$ .

#### Format Input

Baris pertama terdiri dari sebuah bilangan bulat M. Baris kedua terdiri dari M bilangan bulat,  $a_1, a_2, ..., a_M$ . Baris ketiga terdiri dari M bilangan bulat,  $b_1, b_2, ..., b_M$ . Baris keempat terdiri dari M bilangan bulat,  $c_1, c_2, ..., c_M$  Baris kelima terdiri dari M bilangan bulat,  $N_1, N_2, ..., N_M$ .

#### Format Output

Outputkan M baris. Baris ke-i terdiri dari sebuah bilangan bulat yang merupakan bilangan bulat maksimum X yang memenuhi  $a_iX^3 + b_iX^2 + c_iX <= N_i$ .

#### Constraints

- $1 \le M \le 10^5$
- $1 \le a_i, c_i \le 5$
- $1 \le b_i \le 10^7$
- $1 < N_i < 10^{15}$

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## Sample Input 1 (standard input)

2 1 2 2 1 3 2 100 60

## Sample Output 1 (standard output)

3 2

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