Task A4. SPECIAL SEQUENCE

Consider the positive integers the decimal representation of squares of which contains only the three digits 0, 4, and 9, each of them at least once. Let's call them "special". For example, 2120 is a special, because $2120^2 = 4494400$ and the square contains only the three mentioned digits – "9" (once), "4" (four times), and "0" (twice). 97 is a special number as well: $97^2 = 9409$. 13 is not a special, because $13^2 = 169$ (there are three different digits in the square, but "1" and "6" are not allowed). The number 7 is also not special because $7^2 = 49$ and the square does not contain 0.

Consider the sequence of special numbers, sorted in increasing order: {70, 97, 700, 970, 997, 2120, 3148, 7000, 9700, 9970, 9997, 20102, 21200, 31480, 70000, 97000,…}. Write a program **`special`** to find out the *N*-th member of this sequence. Counting starts at 1.

Input
On a single line of the standard input the positive integer *N* will be given, not greater than 250.

Output
The program has to print on a single line of the standard output the *N*-th member of the special sequence.

EXAMPLE

Input	Output
12	20102

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TASK A5. DIAMONDS

The mining company "Dries, fades, blossoms, but gives no fruits" got a concession for development of a diamond deposit – right–angled parallelepiped sized $L \times M \times N$ meters. The geological research estimated the diamond carats in each cubic meter of the deposit. To decide how to develop the deposit, the economists and mining engineers consider many possibilities. They need help in quick calculation of the diamond carats obtained in given parts of the deposit. Te parts are parallelepipeds with sides parallel to the sides of the deposit. Write down a program **`diamonds`** to calculate the carats in the series of parts (not more than `500000`) of the deposit.

Input
On the first row of the standard input are given L, M and N ($0 < L, M, N \leq 100$) followed by the diamond carats in each cubic meter of the deposit as follows

$C_{1,1,1}$, $C_{1,1,2}$, ... $C_{1,1,L}$, $C_{1,2,1}$, $C_{1,2,2}$, ..., $C_{1,2,L}$,…, $C_{1,M,1}$, $C_{1,M,2}$, ..., $C_{1,M,L}$,
$C_{2,1,1}$, $C_{2,1,2}$, ...,$C_{2,1,L}$,…,$C_{2,M,1}$, $C_{2,M,2}$, ..., $C_{2,M,L}$, …, $C_{N,M,1}$, $C_{N,M,2}$, ..., $C_{N,M,L}$

where $C_{i,j,k} \leq 2000$ carats. On each of the following line of the input are given 6 numbers x_1, y_1, z_1, x_2, y_2, z_2 ($0 \leq x_1 < x_2 \leq L$, $0 \leq y_1 < y_2 \leq M$, $0 \leq z_1 < z_2 \leq N$) – the coordinates of two opposite vertices of a part of the deposit for witch the total quantity of carats has to be calculated. All data in the problem are natural numbers.

Output
For each part of the deposit given in the input the program has to print on separate line of the standard output one number – the quantity of the carats in this part.

EXAMPLE

Input	Output
3 3 2 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 0 0 0 3 3 2 1 0 1 3 2 2	171 52

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Task A6. FROGS-MUTANTS

The frogs-mutants in the metropolitan region have lost their mind. After years in the garbage, they are looking for better life. The boulevard they are living on is now fully covered with garbage bales. Through the boulevard there are N bales, labeled from left to right with the numbers form 0 to $N - 1$, with positive heights H_i $(0 \le i < N)$. On each of the bales there is a frog, which is very tired and can only make not more than J_i $(0 \le i < N)$ jumps. Every jump is to the nearest bale on the right, which is strictly higher than the current bale (not only to the suburbs, but also going highly over the garbage). A frog which has the strength for at least one more jump after than no more higher bales on the right exist succeeds in going in a better world. This world is so high that we didn't find so big number for its height and denote this height with –1. Write a program **`frogs`** to find the maximal height that every frog can reach.

Input
On the first line of the standard input is given the number of bales N $(0 < N \le 10^6)$. On the second line the N natural numbers H_i $(0 < H_i \le 10^9)$ are given, separated by spaces. The third line contains the N natural numbers J_i $(0 < J_i < N)$, also separated by spaces.

Output
On the single line of the standard output the program has to print N natural numbers – a maximal height which can be reached by the corresponding frog (in order from left to right). Two consecutive numbers have to be separated by a space, not leaving spaces before the firs and after the last number.

EXAMPLE 1

Input
8 3 1 4 5 6 2 3 8 1 2 1 3 4 2 1 2
Output
4 5 5 –1 –1 8 8 –1

EXAMPLE 2

Input
6 7 8 9 1 2 3 2 2 2 2 2 2
Output
9 –1 –1 3 –1 –1