COCI '15 Contest 7 #5 Prosti

Time limit: 0.5s **Memory limit:** 64M

Mirko and his older brother Slavko are playing a game. At the beginning of the game, they pick three numbers K, L, M. In the first and only step of the game, each of them picks their own K consecutive integers.

Slavko always picks the first K integers (numbers $1, 2, \ldots, K$). Mirko has a special demand – he wants to choose his numbers in a way that there are exactly L happy numbers among them. He considers a number happy if it meets at least one of the following requirements:

- the number is smaller than or equal to M.
- the number is **prime**.

Out of respect to his older brother, L will be **smaller than or equal** to the total number of happy numbers in Slavko's array of numbers.

They will play a total of Q games with different values K, L, M. For each game, help Mirko find an array that meets his demand.

Input

The first line of input contains Q $(1 \leq Q \leq 100\,000)$. Each of the following Q lines contains three integers, the i^{th} line containing integers K_i, L_i, M_i $(1 \leq K_i, M_i \leq 150, 0 \leq L_i \leq K_i)$ that determine the values K, L, M that will be used in the i^{th} game.

Output

Output Q lines, the i^{th} line containing an integer, the initial number of Mirko's array in the i^{th} game.

If an array with the initial number being smaller than or equal to $10\,000\,000$ does not exist, output `-1`. If there are multiple possible solutions, output any.

Sample Input 1

```
3
1 1 1
2 0 2
3 1 1
```

Sample Output 1

```
1
8
4
```

Sample Input 2

```
3
4 1 1
5 2 3
5 0 3
```

Sample Output 2

```
6
4
24
```

Sample Input 3

```
4
7 2 5
6 1 1
10 4 5
6 2 2
```

Sample Output 3

```
6
20
5
4
```