

Instruction

Kiara is a primary school teacher. She loves to teach mathematics and often incorporates games into her lessons so that her students can study while having fun. One day, she comes up with a simple mathematics game. Each person starts with the number 0 (zero) and each person is given a set of instructions, which each instruction consisting of a mathematical operation. Each instruction will be in form of <operator> <number>, where the operators are either '+', '*', '-', or '/' (note that '/' is integer division).

All of them are also given a target number that they must achieve by performing operations on their starting number (and so on). They can choose to apply a certain instruction or not, but they are not allowed to reorder the instructions given on the paper. In other words, if an instruction X appears below an instruction Y, you cannot apply X before Y. You can choose to apply only X or Y, but if you want to apply both, you must apply Y first before X. (Note that picking the instruction "+ 5" means that you add 5 to your current number).

The goal of this game is to pick the appropriate set of instructions such that your number (which starts from 0) ends up being as close as possible to the target number. If there are multiple answers (i.e. more than one number having the same distance to the target number), pick the smaller one.

Kiara is very excited to give this game a try. As the teacher, she wants to know the correct answer so that the students can verify their answers quickly. To be sure that the answers are correct, Kiara approaches you to help her figure out the answer to all the problems.

Input

The first line of the input contains two integers **N** and **K** ($N \leq 16$, $K \leq 10^9$), separated by a single space, denoting the number of instructions and the target number respectively. The next **N** lines contains the instructions. Each line will contain a character containing the operator and a number.

It is guaranteed that for any combination of instructions that you apply, the results will fit in a 32-bit signed integer.

Output

Print the number that is closest to the target number, as described in the problem statement above. Your output must contain a newline character.

Sample Input 1

```
3 10
+ 4
+ 3
* 3
```

Sample Output 1

```
9
```

Sample Input 2

```
5 1
+ 2
+ 3
+ 4
+ 5
+ 6
```

Sample Output 2

```
0
```

Explanation

In the first sample, you can get 9 by taking the instructions “+ 3” and “* 3”.

$$0 + 3 = 3$$

$$3 * 3 = 9$$

In the second sample, you can get 0 by not following any instructions at all. Following the instruction “+ 2” will give you 2, which has the same difference to the target number (which is 1) as 0.

However, 0 is smaller than 2. Therefore we pick 0 as our answer.

Skeleton

You are given the skeleton file `Instruction.java`.

```
/**
 * Name      :
 * Matric No. :
 */

import java.util.*;

public class Instruction {
    public static void main(String[] args) {
        // define your main method here
    }
}
```

Notes

1. You must use **recursion** to solve this problem.