

I Irritating Interruption II

Tonias has successfully determined that the last mobile game ad he looked at was a total scam. He has managed to get back on track with his thesis, and is determined to not get distracted again.

He will just take a 5-minute break.

...

Do you know those mobile game ads where you control an army that must repeatedly choose between different gates, each applying a mathematical operation to the army’s strength (such as $\times 3$, $+10$ or -4)?

Tonias is now stuck playing the multi-army version: He starts with k armies, each with a strength of 1. In each round, a mathematical operation ($+$ or $\times$) is given, along with k gates displaying their corresponding integers.

Each of the armies must go through a *different* gate. When an army goes through a gate with value a , the army’s strength is either increased or multiplied by a (depending on the operation of that round). Your objective is to help Tonias maximize the *sum of strengths* of all his armies after all rounds, so he can get back to his thesis.

Input

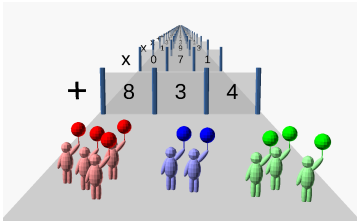
The input consists of:

- One line with two integers n and k ($1 \leq n \cdot k \leq 10^4$), the number of rounds and the number of armies.
- n lines, each containing an operator (either ‘+’ or ‘*’) and k integers a ($0 \leq a \leq 10^{12}$), the value of each gate in this round.

It is guaranteed that, for any given input, no army strength can ever exceed 10^{12} .

Output

Output the maximum achievable sum of strengths of the armies.



The high-quality multi-army version of the game, sporting many polygons and at least one texture that is definitely not a rendering artefact.

Sample Input 1	Sample Output 1
3 1 + 3 * 10 + 2	42

Sample Input 2

3 3
+ 1 2 3
* 3 2 2
+ 7 6 7

Sample Output 2

42
