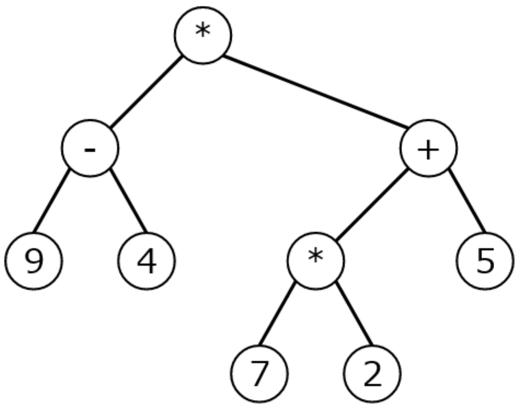
Problem B. Blocks and Expressions

Input file:	*standard input*
Output file:	*standard output*
Time limit:	2 seconds
Memory limit:	1024 mebibytes

To evaluate a program efficiently, a language processor often transforms it into a syntax tree. In this problem you are given a syntax tree of a mathematical expression using ASCII characters. Please evaluate the expression

The syntax tree we consider in this problem is a rooted binary tree where each node has either zero or two children. If a node has zero children, it is an integer node that corresponds to a single integer between 0 and 9, inclusive. On the other hand, if a node has two children, the node is a binary operation node that corresponds to a binary operation of either addition, subtraction or multiplication. In this case the left and right children correspond to the left and right operands of the binary operation, respectively. For example, a figure below represents the syntax tree of expression

$(9 - 4) \cdot ((7 \cdot 2) + 5)$.



To represent such a syntax tree using ASCII characters, you are given H strings of W characters. Each character is either '+', '-', '*', a digit between '0' and '9', or a period that represents a blank. For example, here is the representation of the syntax tree of Figure B.1.

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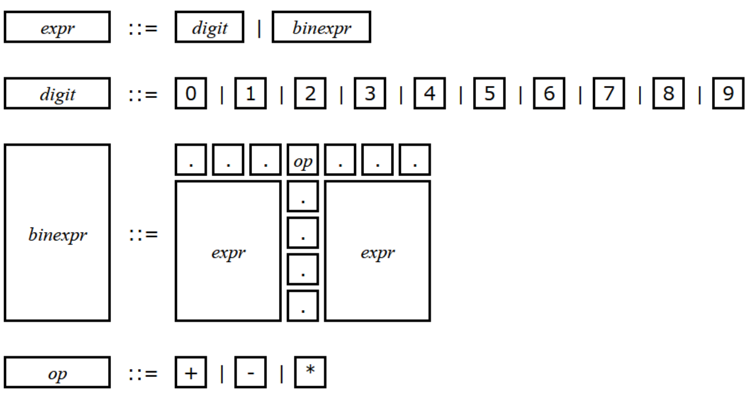
...*.....
.-.....+.
9.4..*..5
....7.2..
```

Figure below shows the rules (similar to Backus-Naur Form) of such representation of a syntax tree.



More precisely, the rules are defined as follows.

- A *block* is a rectangular region of characters that corresponds to a single node (i.e., either an integer node or a binary operation node) of a syntax tree.
- A block corresponding to an integer node contains only a single digit that is the same integer of the node. The height and width of such a block are 1.
- A block c corresponding to a binary operation node v contains a single operator and two other blocks as children. More precisely, let v_1 and v_2 be the left and right children of the binary operation node, respectively. And let c_1 and c_2 be the blocks that correspond to v_1 and v_2, respectively. The height of c is $\max(h_1, h_2) + 1$ where h_1 and h_2 are the heights of c_1 and c_2, respectively. On the other hand, the width of c is $w_1 + w_2 + 1$ where w_1 and w_2 are the widths of c_1 and c_2, respectively. The topmost row of c consists of w_1 periods followed by an operator followed by w_2 periods where the operator is either '`+`', '`-`' or '`*`'. c_1 is located from the second to the $(h_1 + 1)$-st rows (from the top) and the first to the w_1-st columns (from the left) of c. Similarly, c_2 is located from the second to the $(h_2 + 1)$-st rows (from the top) and the $(w_1 + 2)$-nd to the $(w_1 + w_2 + 1)$-st columns (from the left) of c. Note that although c_1 and c_2 may have different heights, their top borders are always aligned.
- It is guaranteed by the above rules that no two blocks partially overlap each other. In other words, when two blocks overlap, then one of them completely contains the other.
- Any other characters that are not restricted by the above rules are filled by periods.
- The entire region of characters is the "root" block. In other words, the block corresponding to the root node of the syntax tree has height H and width W.

Your task is to calculate the mathematical expression that corresponds to the given syntax tree formatted by the above rules.

Input

The first line of the input contains two integers H and W ($1 \le H, W \le 37$), which represent the height and width of the representation of the given syntax tree. The following H lines consist of strings of length W where each character is either '`+`', '`-`', '`*`', a digit between '`0`' and '`9`', or a period. It is guaranteed that these strings represent a syntax tree of a mathematical expression in a valid form.

Output

Print the calculation result of the mathematical expression that corresponds to the given input.

Examples

standard input	standard output
1 1 5	5
2 3 .-. 9.2	7
4 9 ...*..... .-.....+. 9.4..*..5 ....7.2..	95