Matrix Game

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	512 megabytes

everflame and KisuraOP are playing a game. At the start of the game, everflame provides a matrix, and KisuraOP's goal is to manipulate this matrix to achieve the highest possible score.

The matrix given by everflame is an n by m matrix $a_{i,j}$, where each position can initially be either 0 or 1. Additionally, he provides two integers A and B.

KisuraOP can perform any number of operations (including 0) on this matrix, where each operation can be one of the following two types:

- Choose an $i \in [1, n]$ and flip all elements in the i-th row.
- Choose a $j \in [1, m]$ and flip all elements in the j-th column.

Flipping an element means that if it was originally 1, it will become 0; conversely, if it was originally 0, it will become 1.

For the element $a_{i,j}$ in the i-th row and j-th column of the matrix, if $a_{i,j} = 1$, then this element will contribute $(A \cdot i + B \cdot j)$ to the score; otherwise, its contribution will be 0. The total score of the matrix will be the sum of the scores of all $n \times m$ elements.

Please help KisuraOP determine the maximum score that can be achieved after performing certain operations on this matrix.

Input

The first line contains four integers n, m, A, B ($1 \le n \le 10^6, 1 \le m \le 10, 0 \le |A|, |B| \le 10^6$).

The next n lines contain strings of length m. The character in the i-th row and j-th column represents $a_{i,j}$ ($a_{i,j} \in \{0, 1\}$).

Output

Output a single integer, which is the maximum possible score.

Examples

standard input	standard output
2 2 1 1 01 10	12
3 3 1 -5 010 000 010	-8
3 3 -3 -6 011 010 100	-24

Note

For the first example, first flipping the 1-st row and then flipping the 2-nd column can make the entire matrix 1, achieving the maximum score. The score is $(1{\cdot}1{+}1{\cdot}1){+}(1{\cdot}1{+}1{\cdot}2){+}(1{\cdot}2{+}1{\cdot}1){+}(1{\cdot}2{+}1{\cdot}2) = 12$.

For the second example, only flipping the 2-nd column achieves the maximum score, and it can be proven that there is no better solution. The score is $1 \cdot 2 + (-5) \cdot 2 = -8$.