Problem A. Table

Input file	`stdin`
Output file	`stdout`

As you may already know, accountants keep their data in the form of tables and they calculate all sorts of sums on lines and columns. Atnoc, our accountant, has organized his values in the form of a table with N rows (numbered from 0 to $N-1$) and M columns (numbered from 0 to $M-1$).

Elements on the last column are the sums of their row (more precisely, the element on row i and column $M-1$ is the sum of elements on row i situated on the columns $0, 1, 2, \ldots, M-2$), and the elements on the last line are the sums of their column (more precisely, the element on column j and row $N-1$ is the sum of elements on column j situated on the rows $0, 1, 2, \ldots, N-2$). An example of such a table is shown below.

2	5	7	14
11	6	6	23
13	11	13	37

Unfortunately, Atnoc spilled water on his beloved table and in so doing some of the table's elements became unreadable. In order to recover the value on cell (i, j) if it's unreadable, he will need to pay a cost of B_{ij}. Determine the minimum total cost Atnoc has to pay in order to be able to uniquely determine all elements of the table.

Input Data

Data is read from standard input. The first line contains the natural numbers N and M, representing the size of the table. The arrays A and B represent the elements of the table and the cost to recover the values respectively.

- $A_{ij} = -1$ if the element at row i, column j is unreadable.
- $A_{ij} \geq 1$ if the element at row i, column j is readable.
- B_{ij} is the cost to potentially recover the element at row i, column j. This cost is only relevant if $A_{ij} = -1$.

Output Data

The result must be written to standard output. Output a single line containing the natural number X, representing the minimum total cost required to make the entire table's values uniquely determined.

Restrictions

- $1 \leq N, M \leq 750$.
- If the element (i, j) is readable, $1 \leq A_{ij}$. If unreadable, $A_{ij} = -1$.
- For cells that are not row or column sums (i.e., $i \neq N-1$ and $j \neq M-1$), if A_{ij} is readable, then $A_{ij} \leq 100$. The sums in the last row/column can be larger.
- $1 \leq B_{ij} \leq 10^6$.
- It is guaranteed that the initially readable values are consistent and do not, by themselves, uniquely determine any of the initially unreadable cells.

Examples

Input file	Output file	Explanations
3 3 -1 -1 -1 -1 2 -1 3 4 7 3 3 18 4 1 4 2 2 2	3	In this specific case, by choosing to recover the cell $(0,0)$ (paying cost $B_{00} = 3$), all other cells become uniquely determined by the sum constraints. For instance, knowing A_{00} and the column sum $A_{20} = 3$ allows calculating A_{10}. Knowing A_{10} and the readable cell $A_{11} = 2$ allows calculating the row sum A_{12}. This process continues until the whole table is filled. The minimum cost to achieve this is 3.