Intersections

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	1024 megabytes

In the city, there are n rows and m columns totaling $n \cdot m$ intersections, and the intersection of row i, column j has two properties $a_{i,j}$, $b_{i,j}$. We may use a pair of integers (i, j) to denote the intersection of row i and column j.

When the pedestrian is at intersection (i, j), for any non-negative integer k:

- If the current time is in $[k \cdot a_{i,j} + k \cdot b_{i,j}, (k+1) \cdot a_{i,j} + k \cdot b_{i,j})$, the pedestrian can choose to walk to intersection $(i-1, j)$ if $i > 1$, or intersection $(i+1, j)$ if $i < n$.
- If the current time is in $[(k+1) \cdot a_{i,j} + k \cdot b_{i,j}, (k+1) \cdot a_{i,j} + (k+1) \cdot b_{i,j})$, the pedestrian can choose to walk to intersection $(i, j-1)$ if $j > 1$, or intersection $(i, j+1)$ if $j < m$.

You can choose to remain stationary in place. It takes $c_{i,j}$ time to walk between (i, j) and $(i, j+1)$ in either direction, and $w_{i,j}$ time to walk between (i, j) and $(i+1, j)$ in either direction. It takes no time to pass through the intersection.

At the moment 0, you are at intersection (x_s, y_s) and you want to go to intersection (x_t, y_t). What is the minimum amount of time it will take?

Input

The first line of six positive integers n, m, x_s, y_s, x_t, y_t ($2 \le n, m \le 500, 1 \le x_s, x_t \le n, 1 \le y_s, y_t \le m$), with the meanings described in the problem statement.

For the next n lines, each contains m positive integers. The j-th number in line i represents the property $a_{i,j}$ ($1 \le a_{i,j} \le 10^9$) of intersection (i, j).

For the next n lines, each contains m positive integers. The j-th number in line i represents the property $b_{i,j}$ ($1 \le b_{i,j} \le 10^9$) of intersection (i, j).

For the next n lines, each contains $m-1$ positive integers. The j-th number in line i represents the road length $c_{i,j}$ ($1 \le c_{i,j} \le 10^9$) between intersection (i, j) and intersection $(i, j+1)$.

For the next $n-1$ lines, each contains m positive integers. The j-th number in line i represents the road length $w_{i,j}$ ($1 \le w_{i,j} \le 10^9$) between intersection (i, j) and intersection $(i+1, j)$.

Output

Output one integer in a line, representing the answer.

Example

standard input	standard output
5 5 1 1 5 1 5 3 3 3 3 1 5 4 5 5 2 1 4 3 4 5 2 4 1 2 2 4 5 2 3 2 2 5 1 5 4 1 4 5 3 3 5 5 1 5 3 3 2 2 4 3 2 2 2 5 8 2 9 7 1 5 4 7 2 6 10 8 3 10 2 10 8 7 9 9 9 6 2 1 1 2 8 4 6 4 10 4 1 6 5 8 8 4 10 4	33