Product Rectangle

Time limit: *1000 ms*
Memory limit: *256 MB*

You are given an array A of N integers and an array B of M integers. Consider a matrix C of size $N \times M$ where $C_{i,j} = A_i \cdot B_j$. Find the maximum sum of a rectangle which contains at least one cell.

More formally, find $\max(\sum_{i=r_1}^{r_2} \sum_{j=c_1}^{c_2} C_{i,j} \mid 1 \leq r_1 \leq r_2 \leq N, 1 \leq c_1 \leq c_2 \leq M)$.

Standard input

The first line contains two integers N and M.

The second line contains N integers, representing A.

The third line contains M integers, representing B.

Standard output

Print the value of the sum on the first line.

Constraints and notes

- $1 \leq N, M \leq 2 \cdot 10^3$
- $-10^6 \leq A_i, B_j \leq 10^6$ for all valid i and j

Input	Output	Explanation

`3 3`
`-1 3 5`
`-10 -3 20`
	`160`	$C = \begin{pmatrix} 10 & 3 & -20 \\ -30 & -9 & 60 \\ -50 & -15 & 100 \end{pmatrix}$
		We will choose $r_1 = 2, r_2 = 3, c_1 = 3, c_2 = 3$, which sums up to 160