Task 1

You are given a space separated list of numbers.

Your task is to print a reversed Numpy array with the element type float.

Input Format

A single line of input containing space separated numbers.

Output Format

Print the reverse *NumPy* array with type float.

Sample Input

1 2 3 4 -8 -10

Sample Output

[-10. -8. 4. 3. 2. 1.]

Task 2

You are given a space separated list of nine integers. Your task is to convert this list into 3x3 numpy array.

Input Format

A single line of input containing space separated integers.

Output Format

Print the 3x3 *numpy* array.

Sample Input

1 2 3 4 5 6 7 8 9

Sample Output

[[1 2 3]
[4 5 6]
[7 8 9]]

Task 3

Your task is to print an array of size NxM with its main diagonal elements as 1's and 0's everywhere else.

Input Format

A single line containing the space separated values of N and M.

N denotes the rows.

M denotes the columns.

Output Format

Print the desired NxM array.

Sample Input

3 3

Sample Output

```
[[ 1.  0.  0.]
 [ 0.  1.  0.]
 [ 0.  0.  1.]]
```

Task 4

You are given two integer arrays, A and B of dimensions NxM.

Your task is to perform the following operations:

1. Add (A +B)
2. Subtract (A-B)
3. Multiply (A*B)
4. Integer Division (A //B)
5. Mod (A%B)
6. Power (A**B)

Input Format

The first line contains two space separated integers, N and M.

The next N lines contains M space separated integers of array A.

The following N lines contains M space separated integers of array B.

Output Format

Print the result of each operation in the given order under **Task**.

Sample Input

```
1 4
1 2 3 4
5 6 7 8
```

Sample Output

```
[[ 6  8 10 12]]
[[-4 -4 -4 -4]]
[[ 5 12 21 32]]
[[0 0 0 0]]
[[1 2 3 4]]
[[    1    64  2187 65536]]
```

Task 5

You are given a NxM integer array matrix with space separated elements (N = rows and M = columns).

Your task is to print the *transpose* and *flatten* results.

Input Format

The first line contains the space separated values of N and M.

The next N lines contains the space separated elements of M columns.

Output Format

First, print the *transpose* array and then print the *flatten*.

Sample Input

```
2 2
1 2
3 4
```

Sample Output

```
[[1 3]
 [2 4]]
[1 2 3 4]
```