Array Mathematics *





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Problem Submissions Leaderboard Editorial A

Basic mathematical functions operate element-wise on arrays. They are available both as operator overloads and as functions in the NumPy module.

```
import numpy
a = numpy.array([1,2,3,4], float)
b = numpy.array([5,6,7,8], float)
                         #[ 6. 8. 10. 12.]
print a + b
print numpy.add(a, b)
                         #[ 6. 8. 10. 12.]
                         #[-4. -4. -4. -4.]
print a - b
print numpy.subtract(a, b) #[-4. -4. -4. -4.]
                         #[ 5. 12. 21. 32.]
print numpy.multiply(a, b) #[ 5. 12. 21. 32.]
                         #[0.2
                                     0.33333333 0.42857143 0.5
print a / b
print numpy.divide(a, b)
                            #[0.2
                                        0.33333333 0.42857143 0.5
                         #[1. 2. 3. 4.]
print a % b
                           #[1. 2. 3. 4.]
print numpy.mod(a, b)
                         #[ 1.00000000e+00 6.40000000e+01 2.18700000e+03 6.55360000e+04]
print a**b
print numpy.power(a, b)
                            #[ 1.00000000e+00 6.40000000e+01 2.18700000e+03 6.55360000e+04]
```

Task

You are given two integer arrays, \boldsymbol{A} and \boldsymbol{B} of dimensions $\boldsymbol{N} \times \boldsymbol{M}$.

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**)

Note

There is a method numpy.floor_divide() that works like numpy.divide() except it performs a floor division.

Input Format

The first line contains two space separated integers, ${\pmb N}$ and ${\pmb M}$.

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 ${\bf Task.}$

Sample Input

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

Sample Output

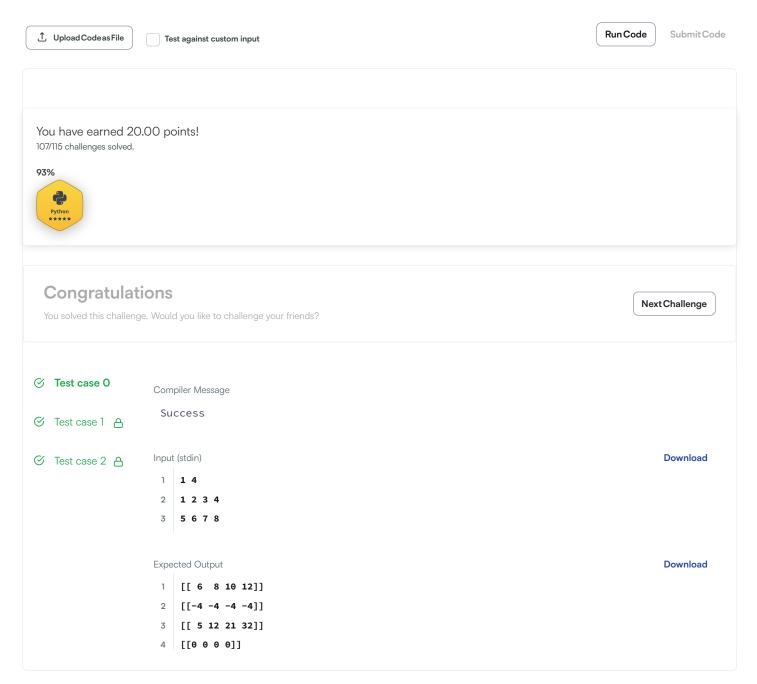
```
[[6 8 10 12]]
[[-4 -4 -4 -4]]
[[5 12 21 32]]
[[0 0 0 0]]
[[1 2 3 4]]
[[ 1 64 2187 65536]]
```

Use // for division in Python 3.



```
1
    import numpy as np
 2
    n, m = map(int, input().split())
 3
 4
    # Read array A
 5
    A = np.array([input().split() for _ in range(n)], int)
 7
     # Read array B
    B = np.array([input().split() for _ in range(n)], int)
 8
10
    # Perform operations
11
    print(A' + B)
12
    print(A - B)
    print(A' * B)
13
    print(A // B)
14
15
    print(A'%'B)
16
     print(A'*** B)
17
```

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