# Array Mathematics

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# Array Mathematics

HackerRank

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)

print a + b                     #[  6.   8.  10.  12.]
print numpy.add(a, b)           #[  6.   8.  10.  12.]

print a - b                     #[-4. -4. -4. -4.]
print numpy.subtract(a, b)      #[-4. -4. -4. -4.]

print a * b                     #[  5.  12.  21.  32.]
print numpy.multiply(a, b)      #[  5.  12.  21.  32.]

print a / b                     #[ 0.2         0.33333333  0.42857143  0.5       ]
print numpy.divide(a, b)        #[ 0.2         0.33333333  0.42857143  0.5       ]

print a % b                     #[ 1.  2.  3.  4.]
print numpy.mod(a, b)           #[ 1.  2.  3.  4.]

print a**b                      #[  1.00000000e+00   6.40000000e+01   2.18700000e+03   6.55360000e+04]
print numpy.power(a, b)         #[  1.00000000e+00   6.40000000e+01   2.18700000e+03   6.55360000e+04]
```

**Task**

You are given two integer arrays, $A$ and $B$ of dimensions $N$x$M$.
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, $N$ 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**

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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]]
```

Use `//` for division in Python 3.

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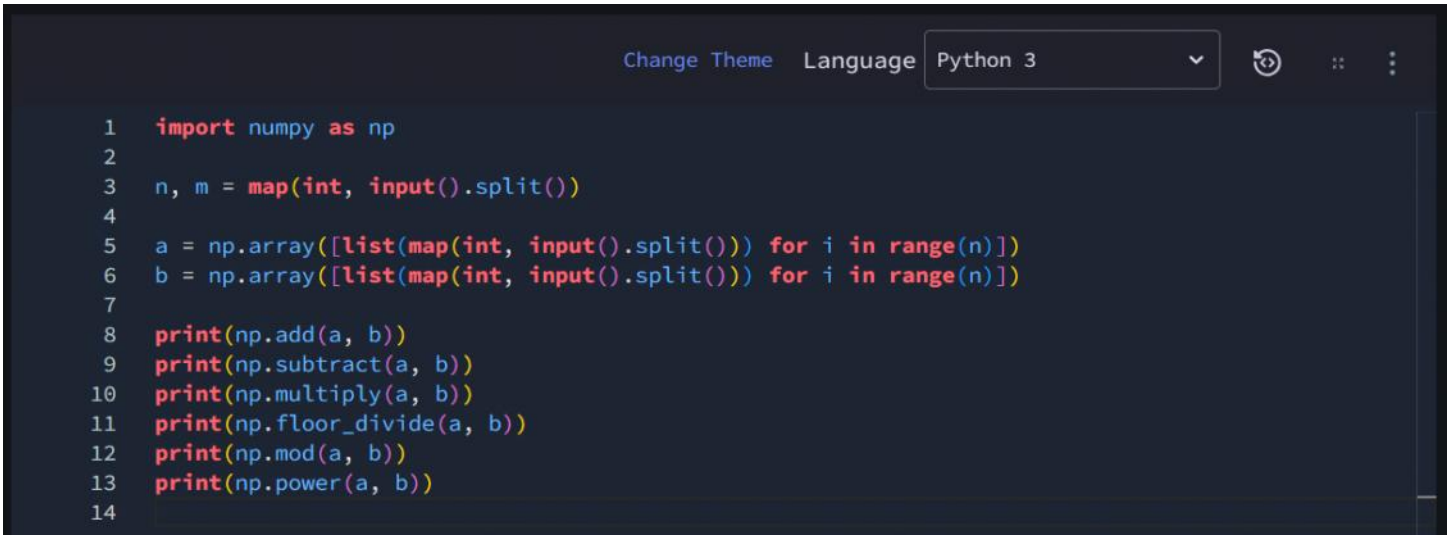


```python
import numpy as np

n, m = map(int, input().split())

a = np.array([list(map(int, input().split())) for i in range(n)])
b = np.array([list(map(int, input().split())) for i in range(n)])

print(np.add(a, b))
print(np.subtract(a, b))
print(np.multiply(a, b))
print(np.floor_divide(a, b))
print(np.mod(a, b))
print(np.power(a, b))

```