



# NumPy multiply()

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**Summary:** in this tutorial, you'll learn how to use the numpy `multiply()` function or the `*` operator to return the product of two equal-sized arrays, element-wise.

## Introduction to the Numpy subtract function

The `*` operator or `multiply()` function returns the product of two equal-sized [arrays](https://www.pythontutorial.net/python-numpy/create-numpy-array/) by performing element-wise multiplication.

Let's take some examples of using the `*` operator and `multiply()` function.

## Using NumPy multiply() function and \* operator to return the product of two 1D arrays

The following example uses the `*` operator to get the products of two 1-D arrays:

```
import numpy as np

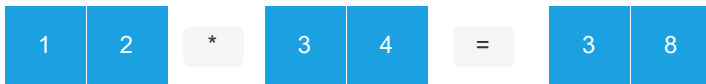
a = np.array([1, 2])
b = np.array([3, 4])
```

```
c = a*b  
print(c)
```

Output:

```
[3 8]
```

How it works.



First, [create two 1D arrays](https://www.pythontutorial.net/python-numpy/create-numpy-array/) (<https://www.pythontutorial.net/python-numpy/create-numpy-array/>) with two numbers in each:

```
a = np.array([1, 2])  
b = np.array([3, 4])
```

Second, get the product of two arrays a and b by using the `*` operator:

```
c = a * b
```

The `*` operator returns the product of each element in array a with the corresponding element in array b:

```
[1*3, 2*4] = [3, 8]
```

Similarly, you can use the `multiply()` function to get the product between two 1D arrays as follows:

```
import numpy as np  
  
a = np.array([1, 2])  
b = np.array([3, 4])
```

```
c = np.multiply(a, b)
print(c)
```

Output:

```
[3 8]
```

Using NumPy multiply() function and \* operator to get the product of two 2D arrays

The following example uses the \* operator to get the products of two 2D arrays:

```
import numpy as np

a = np.array([[1, 2], [3, 4]])
b = np.array([[5, 6], [7, 8]])

c = a*b
print(c)
```

Output:

```
[[ 5 12]
 [21 32]]
```

1	2	*	5	6	=	5	12
3	4		7	8		21	32

In this example, the \* operator performs element-wise multiplication:

```
[[ 1*5  2*6]
 [3*7  4*8]]
```

Likewise, you can use the `multiply()` function to find the products of two 2D arrays:

```
import numpy as np

a = np.array([[1, 2], [3, 4]])
b = np.array([[5, 6], [7, 8]])

c = np.multiply(a, b)
print(c)
```

Output:

```
[[ 5 12]
 [21 32]]
```

## Summary

- Use the `*` operator or `multiply()` function to find the product of two equal-sized arrays.