



NumPy Hyperbolic Functions

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Hyperbolic Functions

NumPy provides the ufuncs `sinh()`, `cosh()` and `tanh()` that take values in radians and produce the corresponding sinh, cosh and tanh values..

Example

Find sinh value of $\pi/2$:

```
import numpy as np

x = np.sinh(np.pi/2)

print(x)
```

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Example

Find cosh values for all of the values in arr:

```
import numpy as np
```

```
arr = np.array([np.pi/2, np.pi/3, np.pi/4, np.pi/5])

x = np.cosh(arr)

print(x)
```

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Finding Angles

Finding angles from values of hyperbolic sine, cos, tan. E.g. sinh, cosh and tanh inverse (arcsinh, arccosh, arctanh).

Numpy provides ufuncs `arcsinh()`, `arccosh()` and `arctanh()` that produce radian values for corresponding sinh, cosh and tanh values given.

Example

Find the angle of 1.0:

```
import numpy as np

x = np.arcsinh(1.0)

print(x)
```

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Angles of Each Value in Arrays

Example

Find the angle for all of the tanh values in array:

```
import numpy as np
```

```
arr = np.array([0.1, 0.2, 0.5])  
  
x = np.arctanh(arr)  
  
print(x)
```

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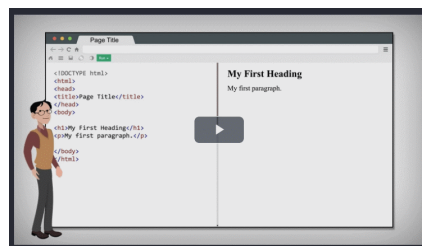
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