```python
import matplotlib.pyplot as plt
import math
```

```python
import numpy as np
```

```python
x = np.arange(0, math.pi*2, 0.05)
print("18IT092")
```
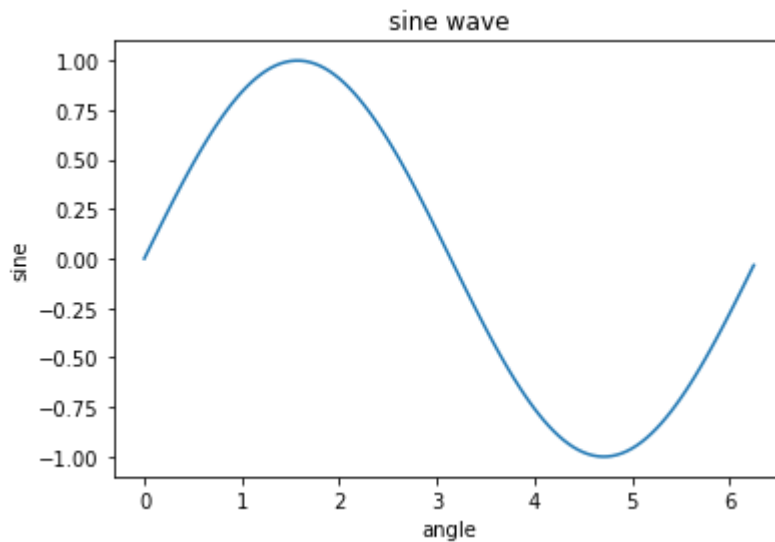
```
18IT092
```

```python
y = np.sin(x)
print("18IT092")
```

```
18IT092
```

```python
plt.plot(x,y)
plt.xlabel("angle")
plt.ylabel("sine")
plt.title('sine wave')
print("18IT092")
plt.show()
```
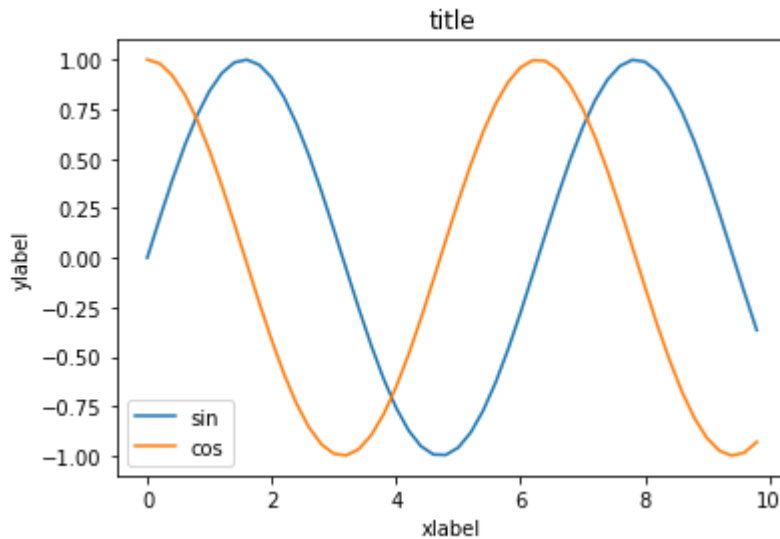
```
18IT092
```



```python
print("18IT092")
x = np.arange(0,10,0.2)
y= np.sin(x)
z = np.cos(x)
plt.plot(x, y,label='sin')
plt.plot(x, z,label='cos')

plt.title('title')
plt.ylabel('ylabel')
```

```
plt.ylabel('ylabel')
plt.xlabel('xlabel')
plt.legend()
plt.show()
```

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```
print("18IT092")
np.corrcoef(x, y)
```

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array([[1.   , -0.046392],
       [-0.046392, 1.   ]])

```
print("18IT092")
plt.scatter(x, y)
plt.title('A plot to show the correlation between sin wave and cos wave')
plt.xlabel('x')
plt.ylabel('y')
plt.plot(np.unique(x), np.poly1d(np.polyfit(x, y, 1))(np.unique(x)), color='yellow')
plt.show()
```

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A plot to show the correlation between sin wave and cos wave

```
print("18IT092")
plt.hist(x=z, bins='auto', color='#0504aa', alpha=0.7, rwidth=0.85)
plt.grid(axis='y', alpha=0.75)
plt.xlabel('cos')
plt.ylabel('sin')
plt.title('Histogram')
```

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    Text(0.5, 1.0, 'Histogram')