

# HOW TO ADD SUBPLOTS IN MATPLOTLIB



Start by plotting one chart onto the chart surface.

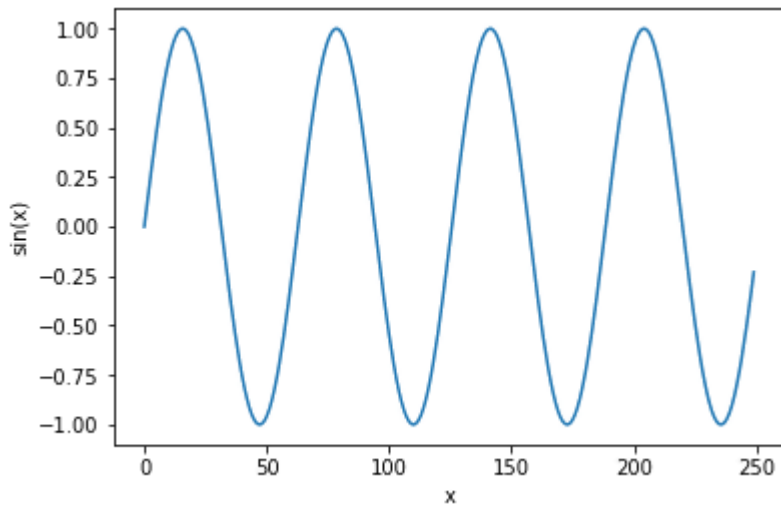
- Use **plt.axes()**, with no arguments. Matplotlib will then autofit the chart to our data.
- The function **np.arange(0,25,0.1)** creates 250 numbers ranging from 0 to 25 in increments of 0.1.
- The y axis will range between 1 and -1 since the sin function **np.sin(x)** ranges between 1 and -1.
- Annotate the chart by labelling each axis with **plt.ylabel('sin(x)')** and **plt.xlabel('x')**.

```
import numpy as np
import matplotlib.pyplot as plt
```

```
x = np.arange(0, 25,0.1)
```

```
axis1 = plt.axes()
plt.ylabel('sin(x)')
plt.xlabel('x')
axis1.plot(np.sin(x))
```

That results in this chart:



## Vertically stacked figures

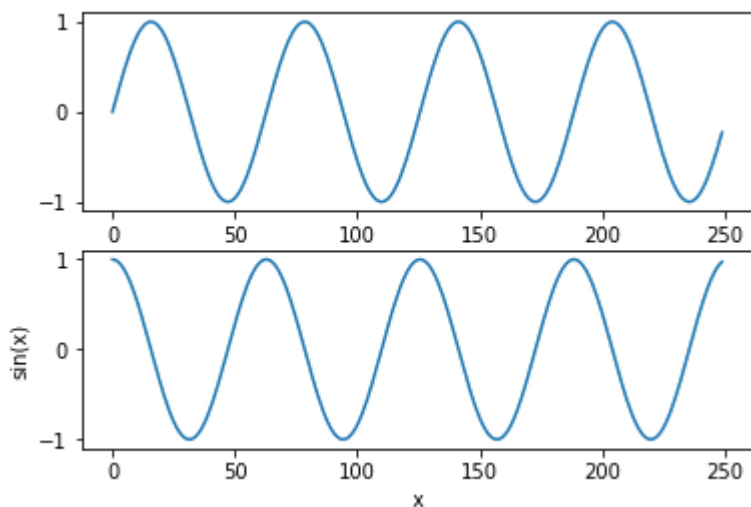
Now, plot two charts, one stacked on top of the other. Use `plt.subplots(2)`. Note that we plot `sin(x)` in the top chart and `cos(x)` in the bottom to avoid graphing the same data twice.

```
import numpy as np
import matplotlib.pyplot as plt
```

```
x = np.arange(0, 25, 0.1)
fig, axis = plt.subplots(2)
```

```
axis[0].plot(np.sin(x))
axis[0].xlabel('x')
axis[1].plot(np.cos(x))
```

That results in:



## Horizontal Side by Side Figures

Here we add:

- **fig, axis = plt.subplots(1,2,figsize=(15,5))** meaning 1 row and 2 columns. Add **figsize** meaning width and heights, respectfully.
- **Note:** There is something not clear here. The Matplotlib documentation says this is given in inches, but it's not, as the chart below will show the same size regardless of the size of your monitor—and why would a system used by people around the world not use the metric system? This seems to be a relative size. So, we may have to call this a documentation bug for now. (Write to us at [blogs@bmc.com](mailto:blogs@bmc.com) if you know the answer to this.)

```
import numpy as np
import matplotlib.pyplot as plt

x = np.arange(0, 25,0.1)
fig, axis = plt.subplots(1,2,figsize=(15,5))

plt.ylabel('sin(x)')
plt.xlabel('x')
axis.plot(np.sin(x))
axis.plot(np.cos(x))
```

This results in the two charts placed side-by-side but spread farther apart.

