

# This is a Markdown Head

write codes for computing an equation:

$$f(x) = 2x^2 + x + 1$$

```
In [1]: ▾ def f(x):  
            return 2*x**2 + x + 1  
  
        x = 2  
        print('f({:d}) = 2*{:d}^2 + {:d} + 1 = {:d}'.format(x, x, x, f(x)))
```

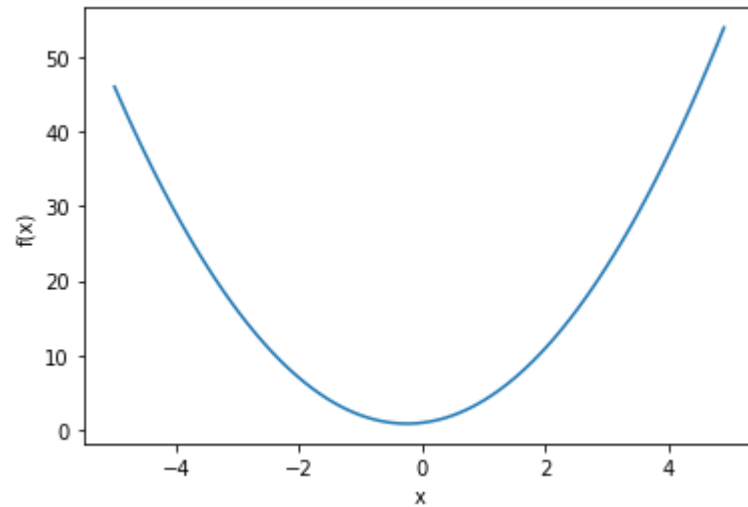
f(2) = 2\*2^2 + 2 + 1 = 11

## Data visualization

```
In [2]: import numpy as np
import matplotlib.pyplot as plt

x_range = np.arange(-5, 5, 0.1)
fx_range = f(x_range)

plt.figure(1)
plt.plot(x_range, fx_range)
plt.xlabel('x'); plt.ylabel('f(x)')
plt.show()
```



## Interaction

```
In [3]: from ipywidgets import interact, interactive, fixed, interact_manual
import ipywidgets as widgets

interact(f, x=10)
```

x  12

301

```
Out[3]: <function __main__.f(x)>
```

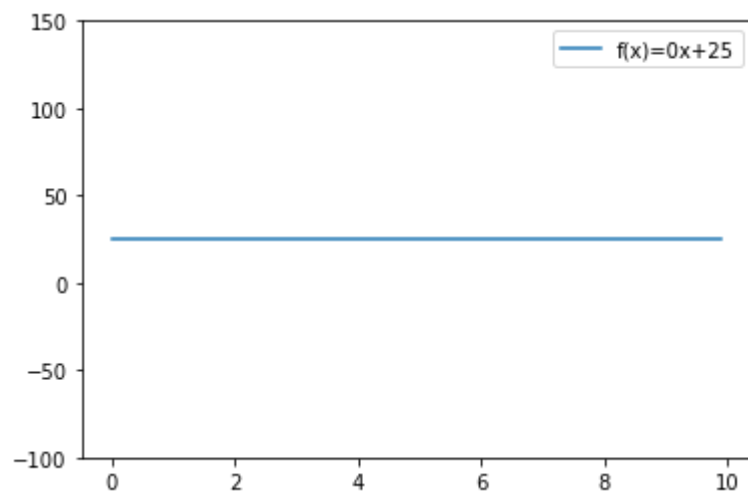
```
In [4]: %matplotlib inline

def f(a, b):
    x = np.arange(0, 10, 0.1)
    y = a*x + b
    plt.plot(x, y)
    plt.legend(['f(x)={:d}x+{:d}'.format(a, b)])
    plt.ylim(-100, 150)
    plt.show()

interactive_plot = interactive(f, a=(-10, 10, 1), b=(0, 50, 5))
output = interactive_plot.children[-1]
# output.layout.height = '350px'
interactive_plot
```

a  0

b  25



In [ ]: