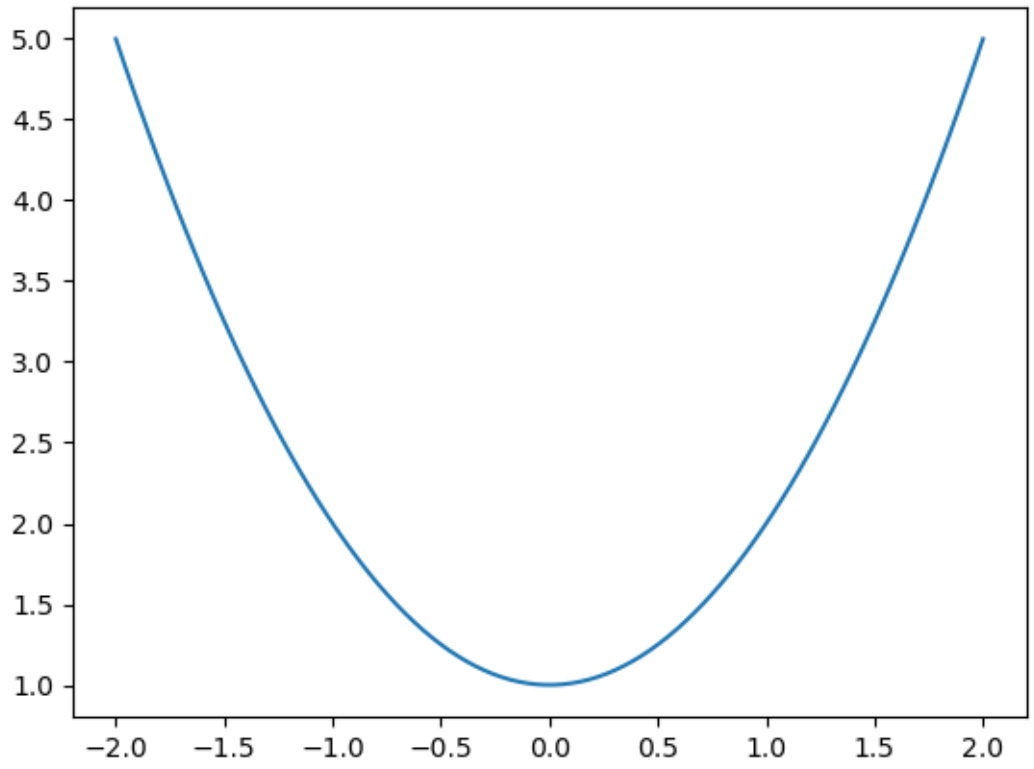
Outils numériques pour Python

[1]:
```
import matplotlib.pyplot as plt
import numpy as np
```

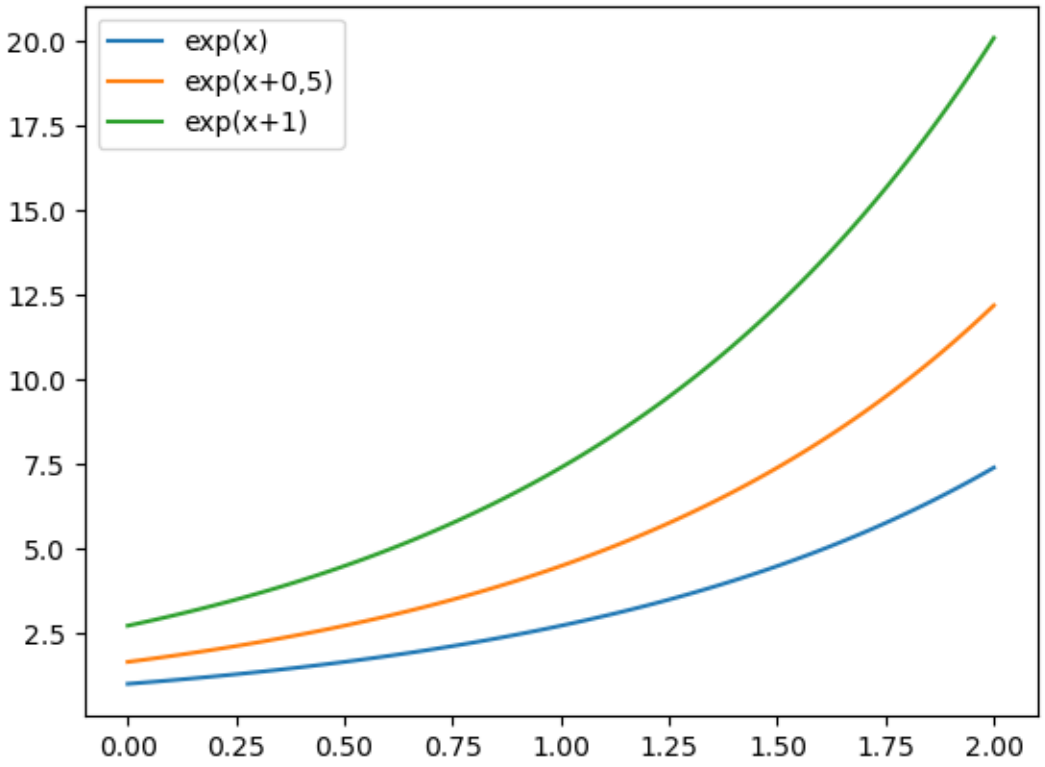
Tracez la courbe de la fonction $x \mapsto x^2 + 1$ entre -2 et 2.

[2]:
```
tab_x=np.linspace(-2,2,100)
tab_y=tab_x**2+1
plt.figure()
plt.plot(tab_x,tab_y)
plt.show()
```



Tracez les courbes de $x \mapsto e^x$, $x \mapsto e^{x+0,5}$ et $x \mapsto e^{x+1}$ entre 0 et 2 en ajoutant une légende.

[3]:
```
tab_x=np.linspace(0,2,100)
plt.figure()
plt.plot(tab_x,np.exp(tab_x),label="exp(x)")
plt.plot(tab_x,np.exp(tab_x+0.5),label="exp(x+0,5)")
plt.plot(tab_x,np.exp(tab_x+1),label="exp(x+1)")
plt.legend()
plt.show()
```



Tracez la courbe de la fonction $x \mapsto \begin{cases} 0 \text{ si } x < 0 \\ x \text{ si } 0 \leq x \leq 1 \\ 1 \text{ si } x > 1 \end{cases}$ entre -2 et 2.

[4]:
```
tab_x=np.linspace(-2,2,100)
tab_y=np.zeros(100) # tableau de 100 zéros
for i in range(len(tab_x)):
    x=tab_x[i]
    if x<0:
        tab_y[i]=0
    elif x<=1:
        tab_y[i]=x
    else:
        tab_y[i]=1
```

```
plt.figure()
plt.plot(tab_x,tab_y)
plt.show()
```