

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

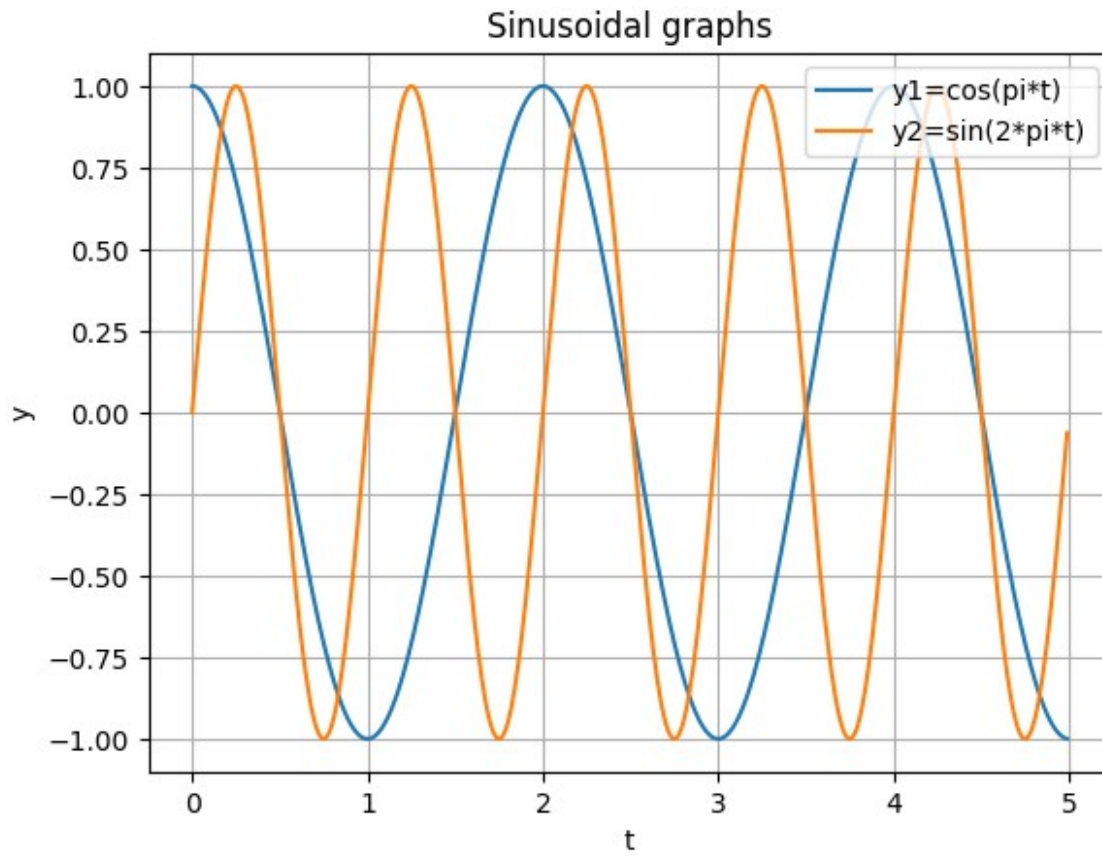
TASK 1

Draw graphs of the function

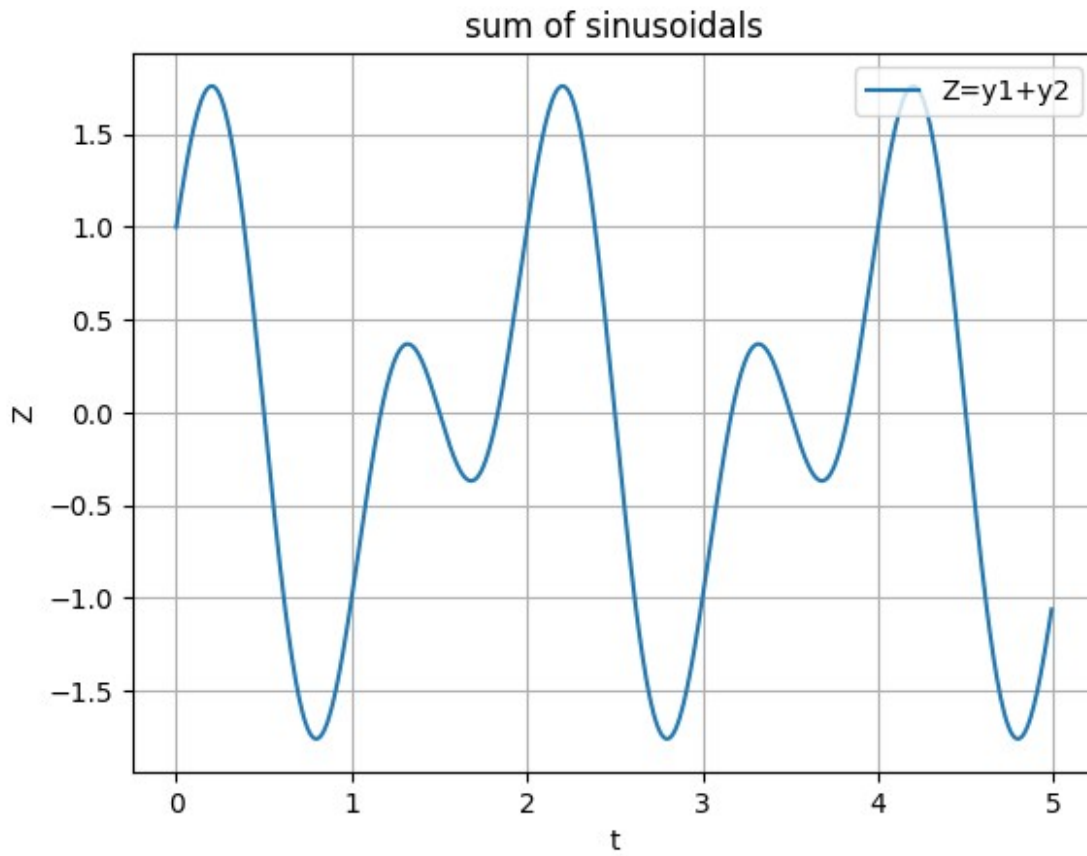
- $y_1 = \cos(\pi t)$
- $y_2 = \sin(2\pi t)$
- $z = y_1 + y_2$ where $0 \leq t \leq 5$

```
pi=np.pi
t=np.arange(0,5,0.01)
y1=np.cos(pi*t)
y2=np.sin(2*pi*t)

plt.plot(t,y1,t,y2)
plt.legend(["y1=cos(pi*t)","y2=sin(2*pi*t)"],loc="upper right")
plt.xlabel("t")
plt.ylabel("y")
plt.title("Sinusoidal graphs")
plt.grid()
plt.show()
```



```
Z=y1+y2
plt.plot(t,Z)
plt.xlabel("t")
plt.ylabel("Z")
plt.grid()
plt.title("sum of sinusoidals")
plt.legend(["Z=y1+y2"],loc="upper right")
plt.show()
```



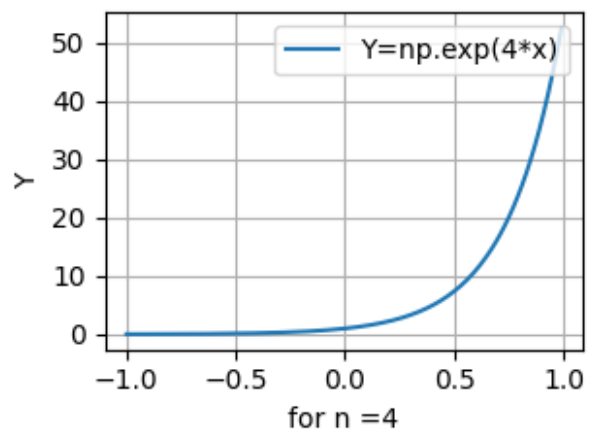
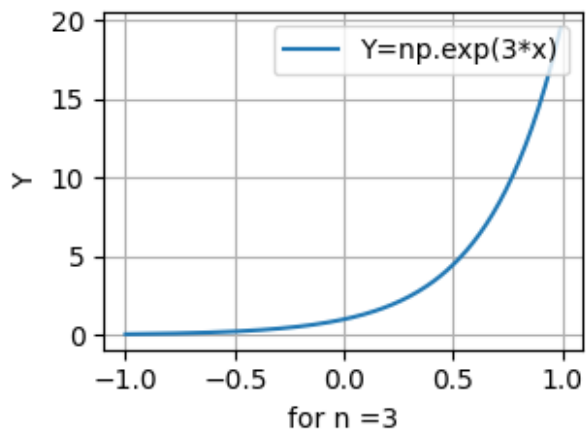
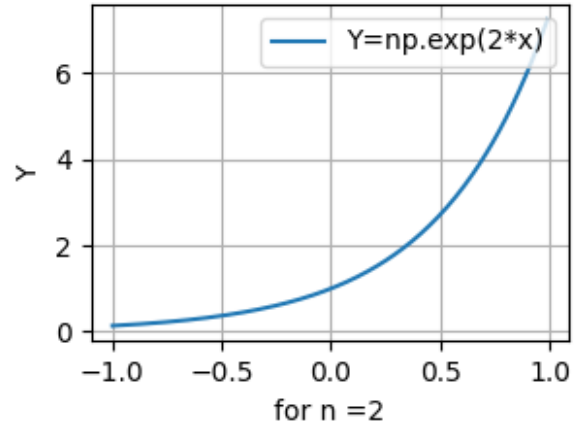
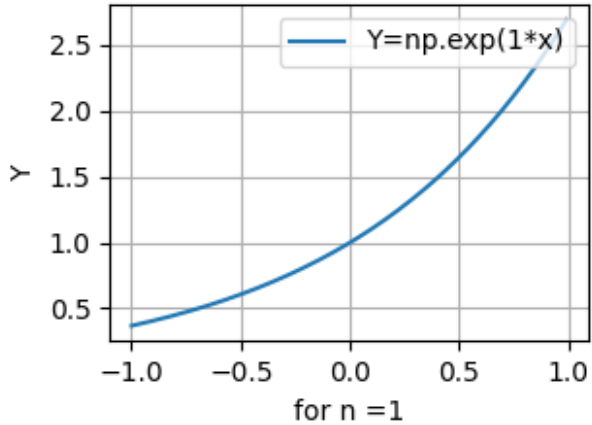
TASK 2

Draw the graph of the function

- $Y=e^{(n*x)}$ on interval $-1 \leq x \leq 1$ for $n=1, 2, \dots, 4$.
- Use subplots

```
x=np.arange(-1,1,0.01)
for n in range(1,5,1):
    Y=np.exp(n*x)
    plt.subplot(2,2,n)
    plt.grid()
    plt.xlabel(f"for n ={n}")
    plt.ylabel("Y")
    plt.plot(x,Y)
    plt.legend([f"Y=np.exp({n}*x)"],loc="upper right")
plt.tight_layout()
```

```
plt.show()
```



TASK 3

Draw the graph of the given function

- $Y = t \cdot \sin(3 \cdot X)$
- where t is an input by the user to the function

```
try:
    t=int(input("Enter the integer number t for the curve
Y=t*sin(3*X)"))
except Exception as e:
    print(e)
    exit()
```

```
X=np.arange(-pi,pi,0.01)
Y=t*np.sin(3*X)

plt.plot(X,Y)
plt.grid()
plt.legend([f"Y={t}*sin(3*X)"],loc="upper right")
plt.xlabel("X")
plt.ylabel("Y")
plt.show()
```

