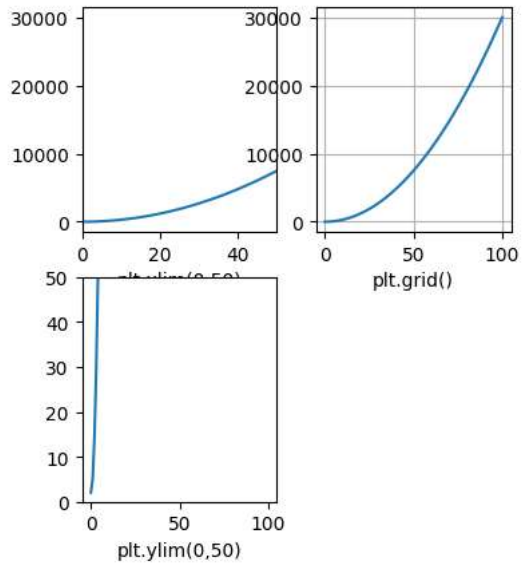
Task 1 Run and document the effect these settings have on pyplot's graph presentation ● plt.xlim(0,50) ● plt.ylim(0,50) ● plt.grid()

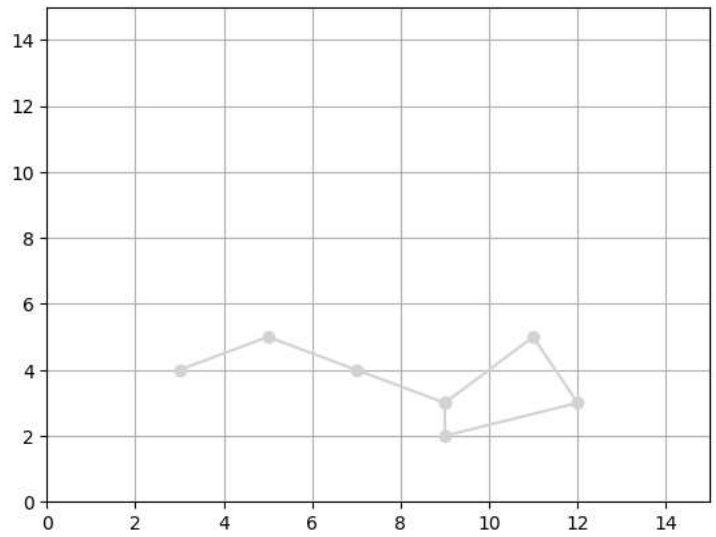
```
import matplotlib.pyplot as plt
import numpy as np

def equation(x):
  return 3*x*x+2

x=np.linspace(0,100,num=100)
y=[]
for i in x:
  y.append(equation(i))

#first question solution
plt.subplot(2,3,1)
plt.xlim(0,50)
plt.plot(x,y)
plt.xlabel('plt.xlim(0,50)')

#second question solution
plt.subplot(2,3,4)
plt.ylim(0,50)
plt.plot(x,y)
plt.xlabel('plt.ylim(0,50)')

#third question solution
plt.subplot(2,3,2)
plt.grid()
plt.plot(x,y)
plt.xlabel('plt.grid()')

plt.show()
```



Double-click (or enter) to edit

*Task 2 - * Create a graph that shows the big dipper constellation. Use the options to make the points of this graph 'stars' and the line colour a light gray.

```
import numpy as np
x=[3,5,7,9,11,12,9,9]
y=[4,5,4,3,5,3,2,3]
plt.grid()
plt.xlim(0,15)
plt.ylim(0,15)
plt.plot(x,y,color="lightgray",marker="o")
plt.show()
```

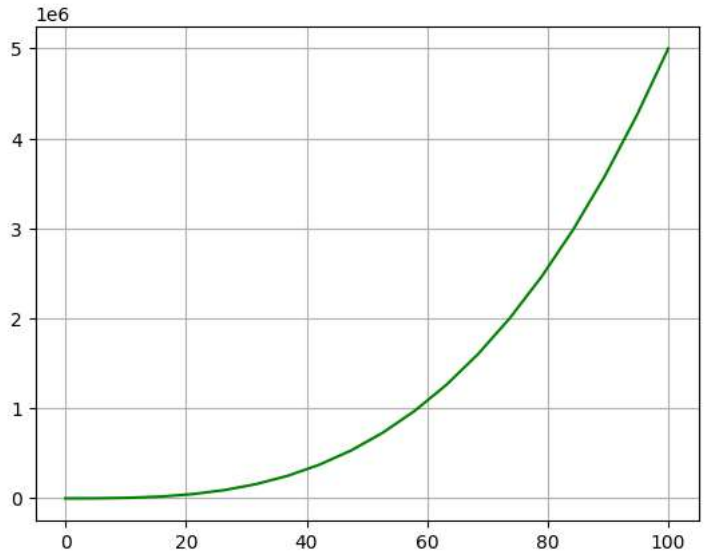


Task 3 Plot 20 X,Y values of the functions 1) f(x) = 5x 3 + 2x - 1 2) f(x) = -2x 3

- x2 + 100 3) f(x) = 2πx + 20

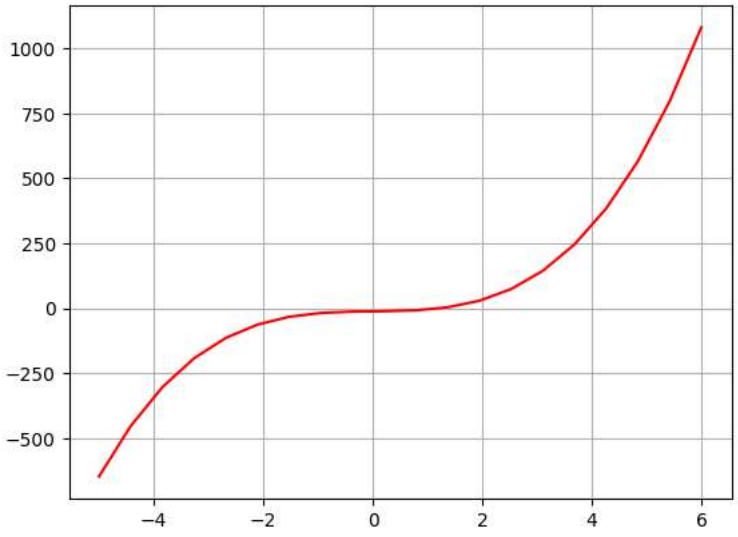
Double-click (or enter) to edit

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

def f(x):
  return 5*x**3+2*x-12

x=np.linspace(0,100,20)
y=[]
for i in x:
  y.append(f(i))


plt.plot(x,y,color="green")
plt.grid()
plt.show()
```

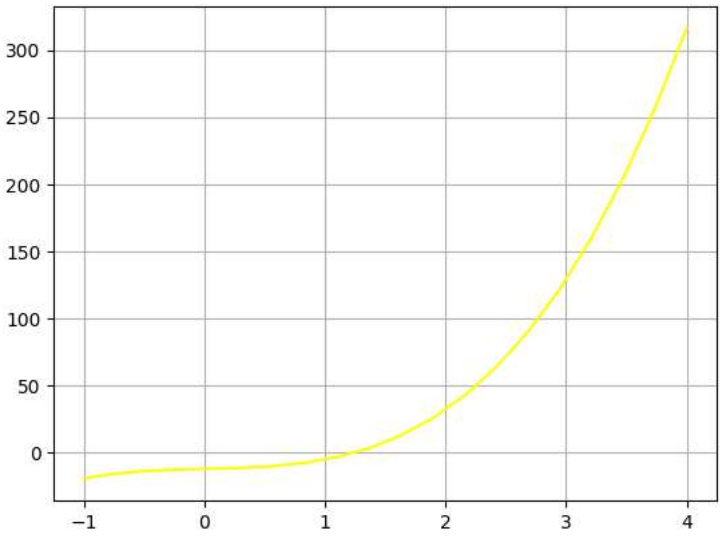



```
def g(x):
  return -2*x**3-x**2+100

x=np.linspace(-5,6,20)
y=[]
for i in x:
```

```
  y.append(f(i))


plt.plot(x,y,color="red")
plt.grid()
plt.show()
```

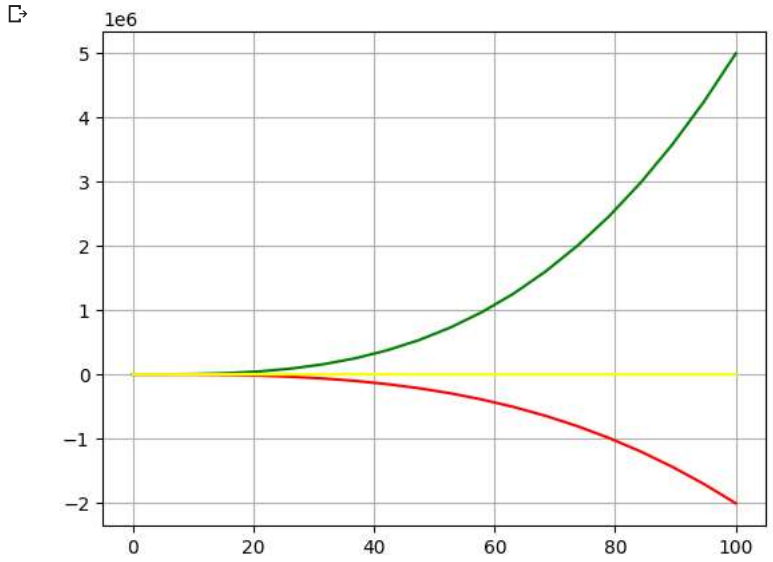



```
import math
def h(x):
  return 2*math.pi*x+20

x=np.linspace(-1,4,20)
y=[]
for i in x:
  y.append(f(i))


plt.plot(x,y,color="yellow")
plt.grid()
plt.show()
```

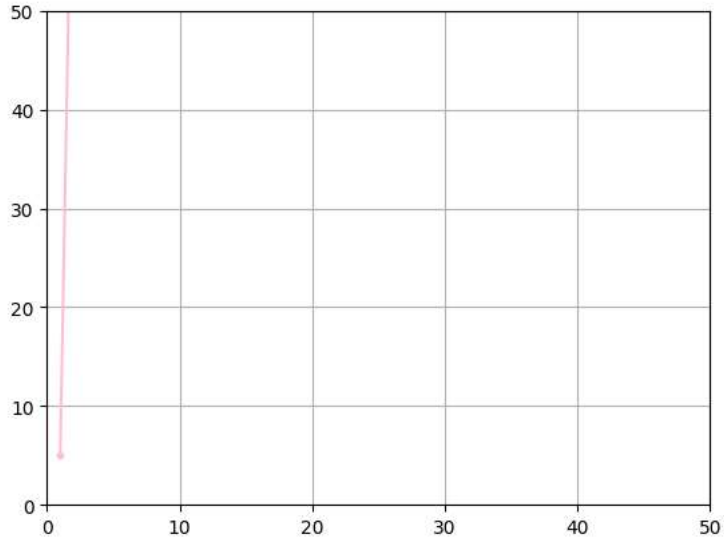



```
def f(x):
  return 5*x**3+2*x-12
def g(x):
  return -2*x**3-x**2+100
def h(x):
    return 2*math.pi*x+20

x=np.linspace(0,100,20)
```

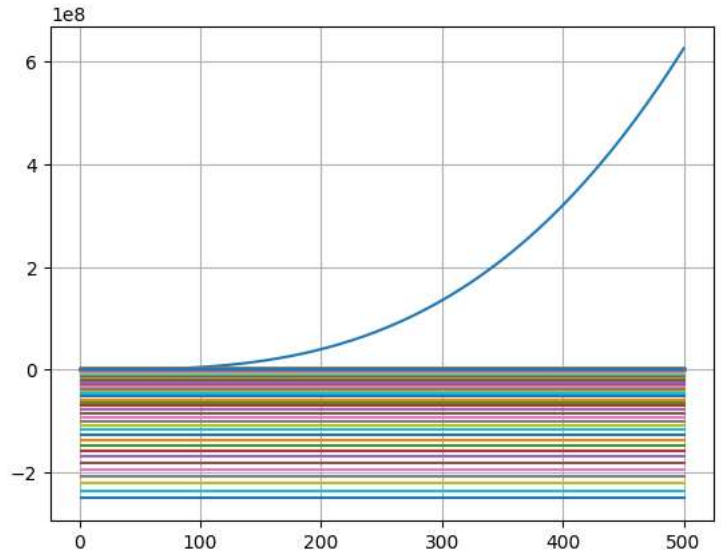
```
x =np.linspace(0,100,20)
y1=[]
y2=[]
y3=[]

for i in x:
  y1.append(f(i))
  y2.append(g(i))
  y3.append(h(i))

plt.plot(x,y1,color="green")
plt.plot(x,y2,color="red")
plt.plot(x,y3,color="yellow")
plt.grid()
plt.show()
```




```
def e(x):
  y=[]
  for i in range(len(x)):
    function= 3*x[i]**2+2
    y.append(function)
  return y
x= np.linspace(1,200,num=10)
y=e(x)
plt.plot(x,y,color="pink",marker=".")
plt.xlim(0,50)
plt.ylim(0,50)
plt.grid()
plt.show()
```



```
def e(x):
   y=[]
   for i in range (len(x)):
     function =5*x[i]**3+2*x[i]-1
     y.append(function)
   return y
def l(x):
   z=[]
   for i in range (len(x)):
    function =-2*x**3-x**2+100
    z.append(function)

   return z
def z(x):
   a=[]
   for i in range (len(x)):
     function = 2*3.14*x+20+100
     a.append(function)
   return a
x =np.linspace(1,500,num=50)
y=l(x)
a=z(x)
plt.plot(x,e(x))
plt.plot(x,l(x))
plt.plot(x,z(x))


plt.grid()
plt.show()
```



✓ 0s completed at 12:57 PM