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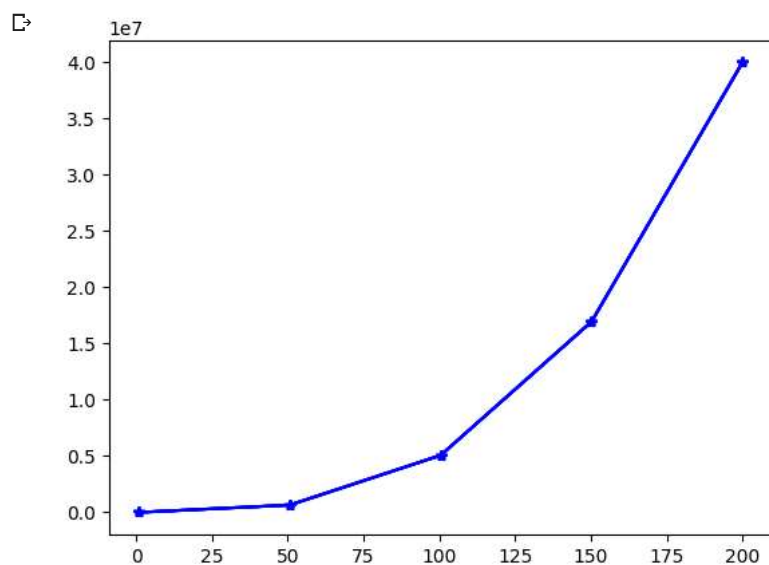
Double-click (or enter) to edit

```
#Akriti Kumari Dev
import matplotlib.pyplot as plt
import numpy as np
import math

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

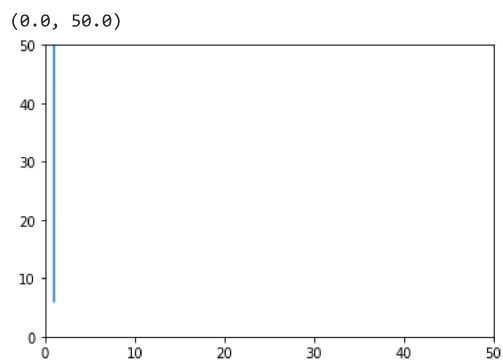
a=np.linspace(1,200,num=5)
b=function_a(a)

plt.plot(a,b, color="blue",marker="*")
plt.show()
```

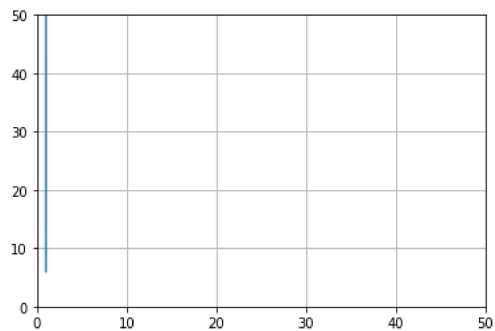


Task 1 Run and document the effect these settings have on pyplot's graph presentation • `plt.xlim(0,50)` • `plt.ylim(0,50)` • `plt.grid()`

```
plt.plot(a,b)
plt.xlim(0,50)
plt.ylim(0,50)
```

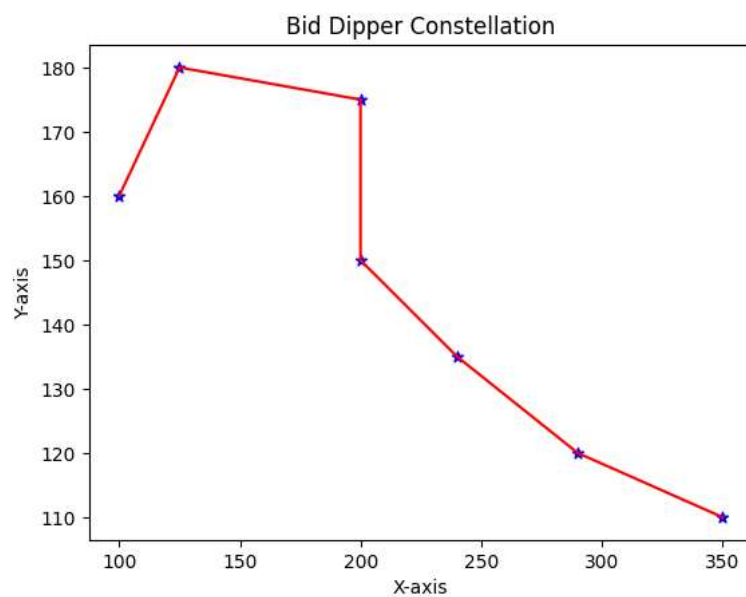


```
plt.plot(a,b)
plt.xlim(0,50)
plt.ylim(0,50)
plt.grid()
```



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.

```
#Akriti Kumari Dev
x=[100,125,200,200,240,290,350]
y=[160,180,175,150,135,120,110]
plt.scatter(x,y,marker='*', color='blue')
plt.plot(x,y,color='red')
plt.title('Bid Dipper Constellation')
plt.xlabel('X-axis')
plt.ylabel('Y-axis')
plt.show()
```



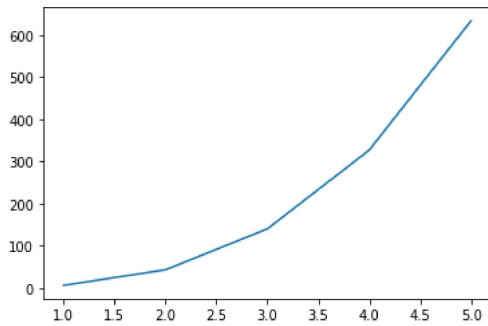
Double-click (or enter) to edit

Task 3 Plot 20 X,Y values of the functions

1) $f(x) = 5x^3 + 2x - 1$

```
#Akriti Kumari Dev
def f(x):
    y=[]
    for values in x:
        y.append(5*values**3+2*values-1)
    return y
x=[1,2,3,4,5]
print(f(x))
plt.plot(x,f(x))
```

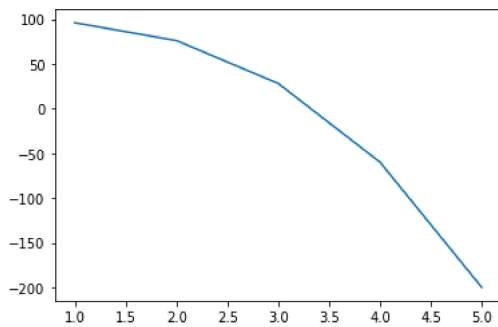
```
[6, 43, 140, 327, 634]
[<matplotlib.lines.Line2D at 0x7f8608f54970>]
```



2) $f(x) = -2x^3 - x^2 + 100$

```
#Akriti Kumari Dev
def g(i):
    j=[]
    for values in i:
        j.append(-2*values**3-2*values**2+100)
    return j
i=[1,2,3,4,5]
print(g(i))
plt.plot(i,g(i))
```

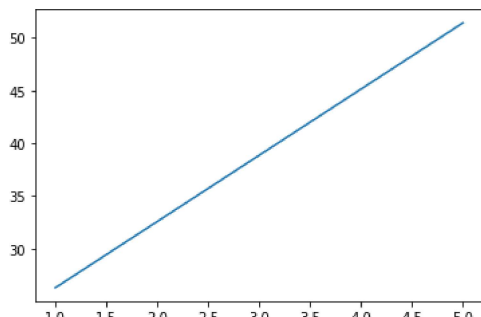
```
[96, 76, 28, -60, -200]
[<matplotlib.lines.Line2D at 0x7f860934f040>]
```



3) $f(x) = 2\pi x + 20$

```
#Akriti Kumari Dev
def h(k):
    l=[]
    for values in k:
        l.append(2*math.pi*values+20)
    return l
k=[1,2,3,4,5]
print(h(k))
plt.plot(k,h(k))
```

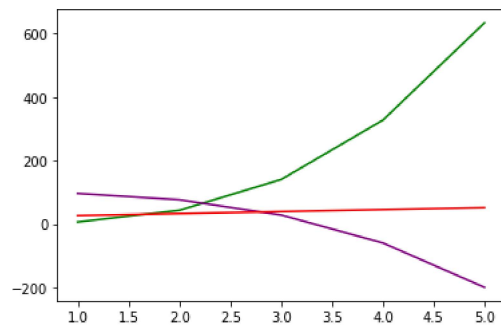
```
[26.283185307179586, 32.56637061435917, 38.84955592153876, 45.132741228718345, 51.415926]
[<matplotlib.lines.Line2D at 0x7f860907d940>]
```



Task 4 Create a graph that has all of the lines from Task 3 on the same graph.

```
#Akriti Kumari Dev  
plt.plot(x,f(x),color="green")  
plt.plot(i,g(i),color="purple")  
plt.plot(k,h(k),color="red")
```

[<matplotlib.lines.Line2D at 0x7f8609143b20>]



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