In [1]:
```python
import numpy as np
import matplotlib.pyplot as plt
```
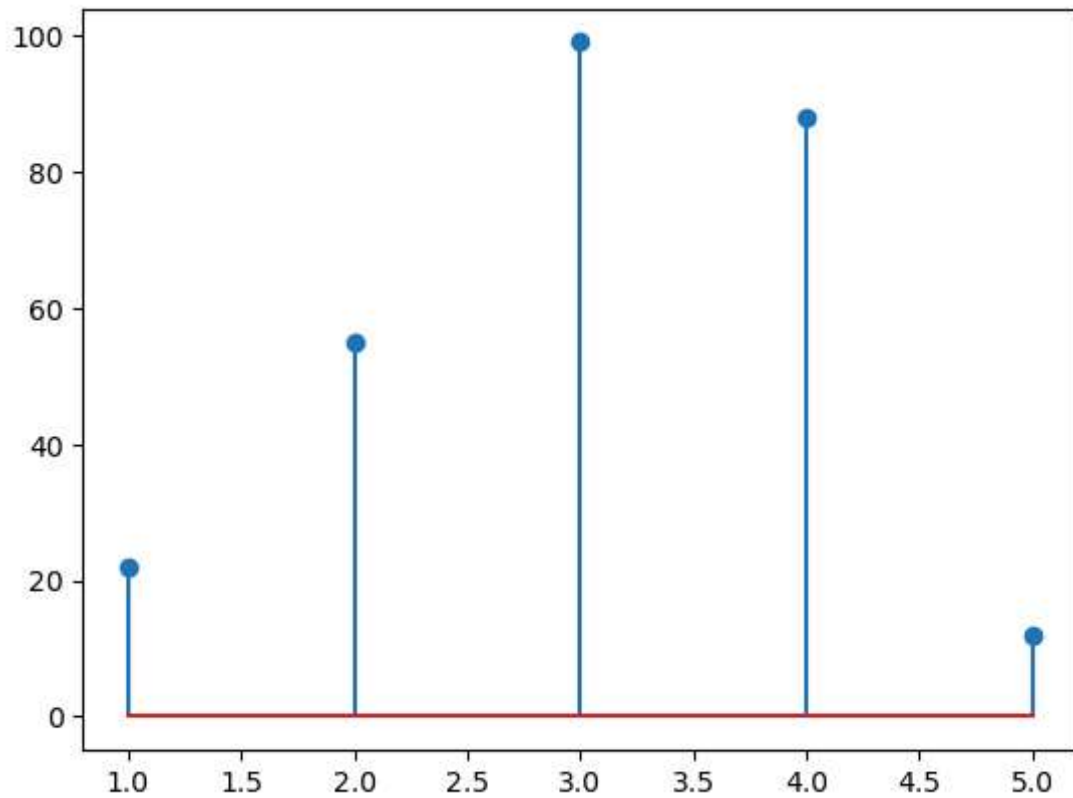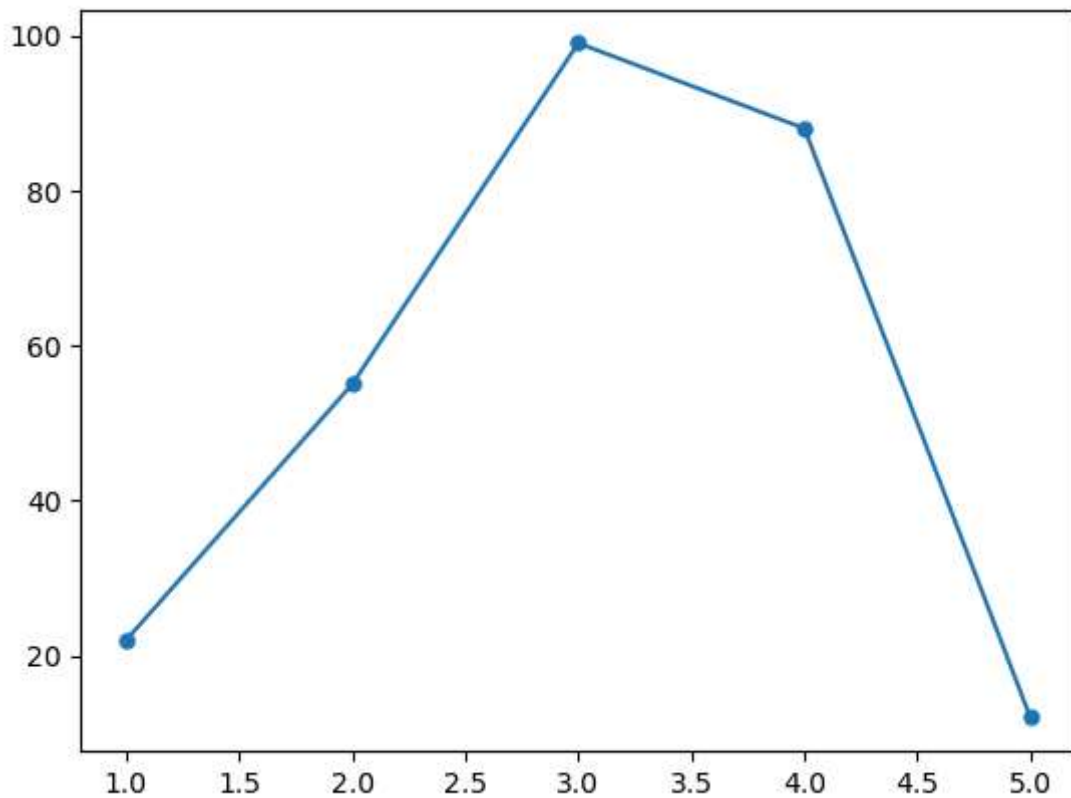
In [3]:
```python
x=np.array([1,2,3,4,5])
y=np.array([22,55,99,88,12])
plt.stem(x,y)
plt.show()
```
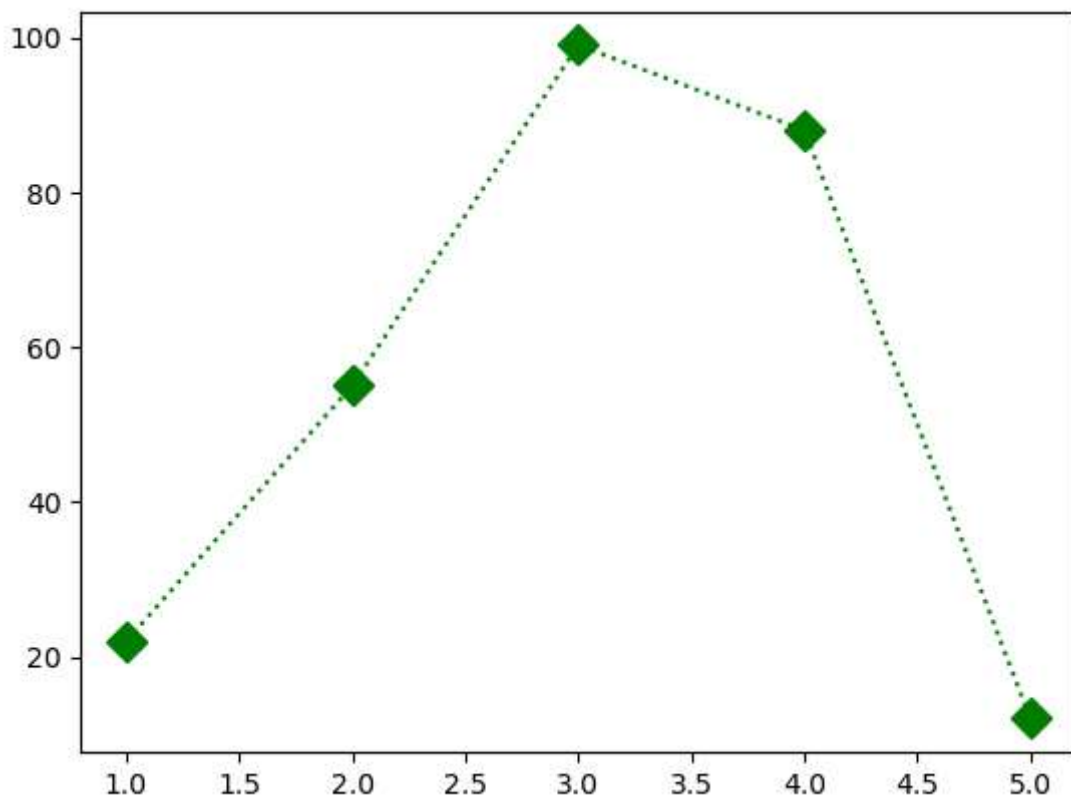

In [5]:
```python
x=np.array([1,2,3,4,5])
y=np.array([22,55,99,88,12])
plt.plot(x,y,marker='o',ms=5)
plt.show()
```
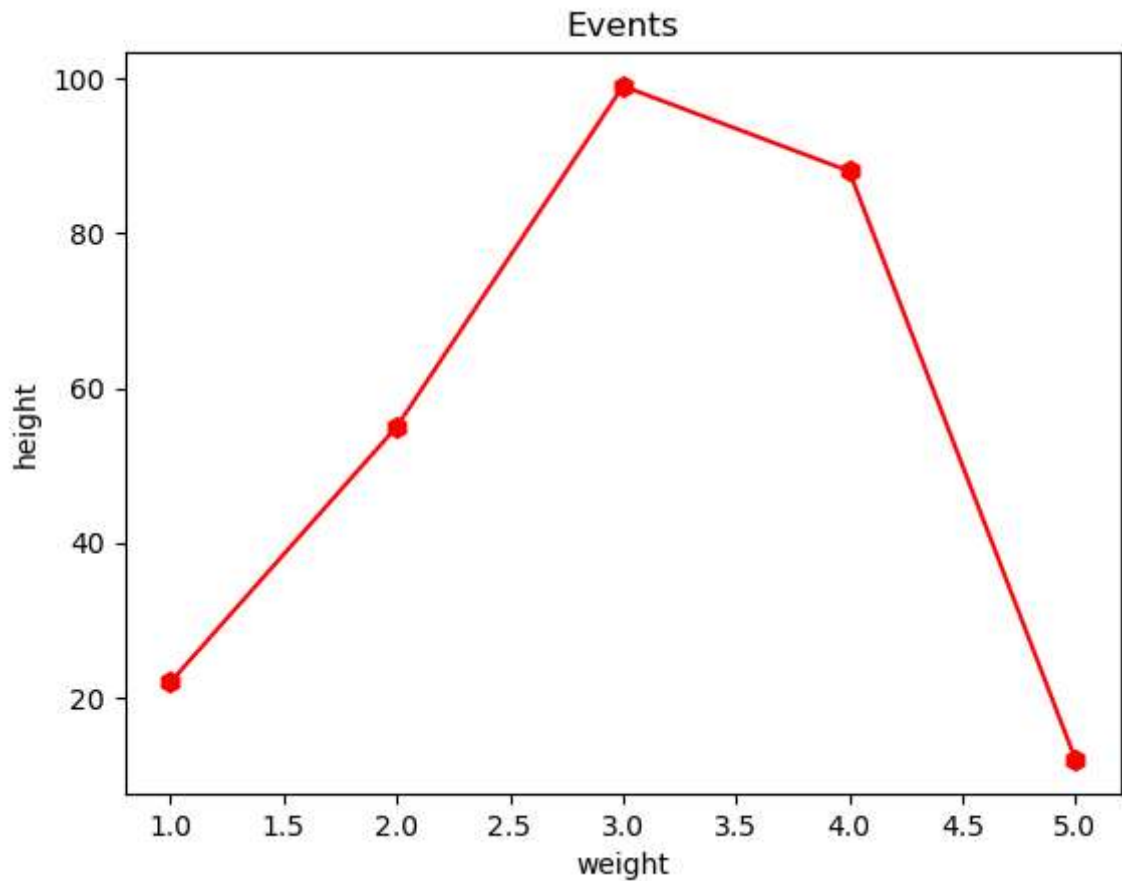
In [7]:
```python
x=np.array([1,2,3,4,5])
y=np.array([22,55,99,88,12])
plt.plot(x,y,'D:g',ms=10)
plt.show()
```
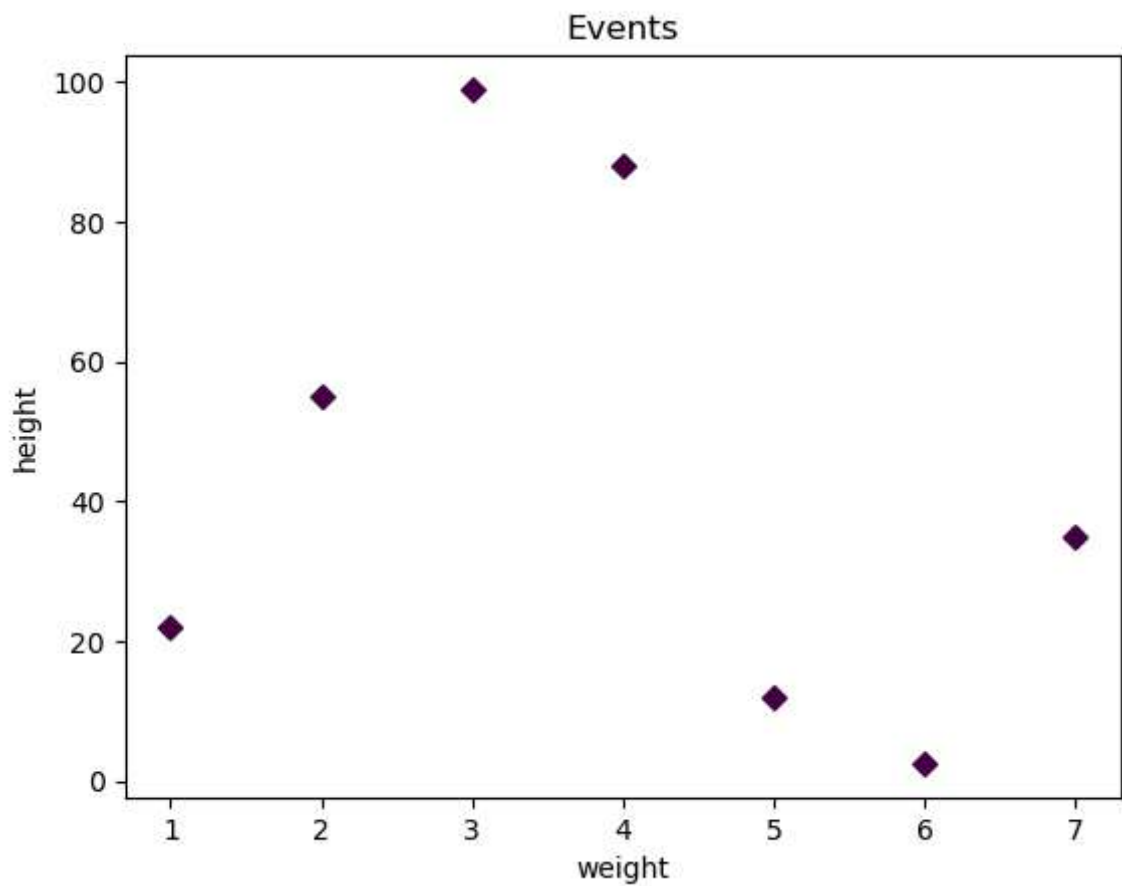

In [9]:
```python
x=np.array([1,2,3,4,5])
y=np.array([22,55,99,88,12])
plt.plot(x,y,'r-h',ms=7)
plt.title("Events")
```
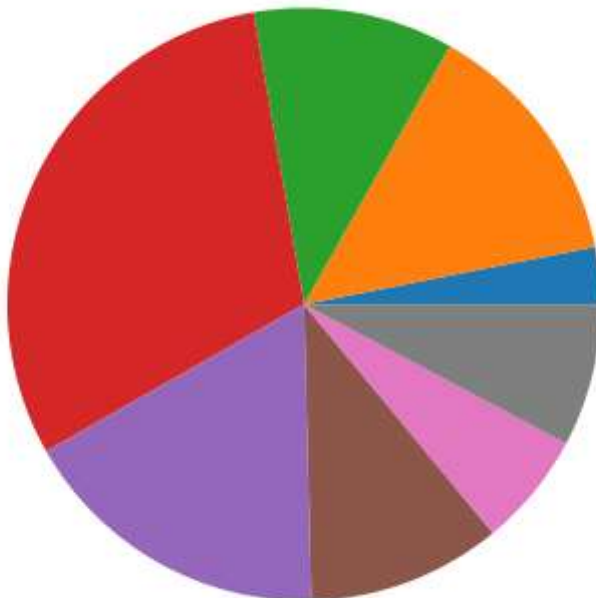
```
plt.xlabel("weight")
plt.ylabel("height")
plt.show()
```
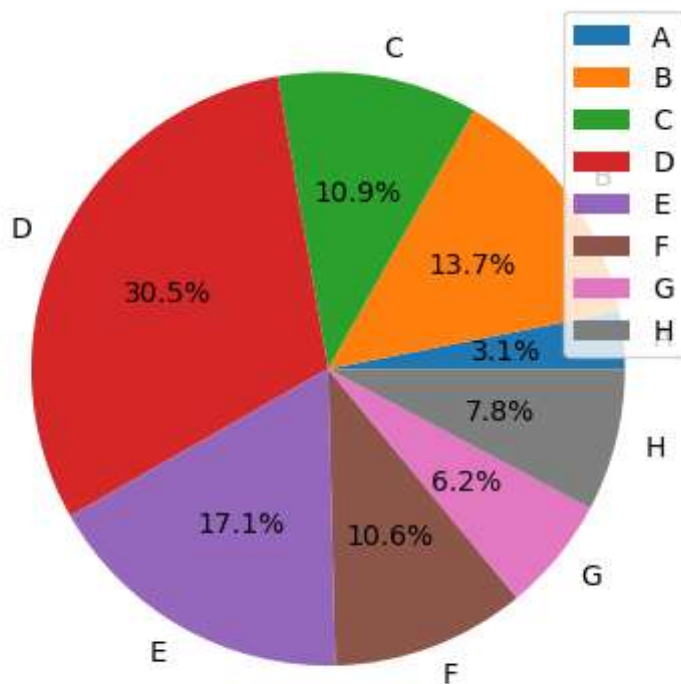

In [11]:
```
x=np.array([1,2,3,4,5,6,7])
y=np.array([22,55,99,88,12,2.5,35])
plt.scatter(x,y,marker="D",c='#410445')
plt.title("Events")
plt.xlabel("weight")
plt.ylabel("height")
plt.show()
```

Events

In [13]:
```python
y=np.array([10,44,35,98,55,34,20,25])
plt.pie(y)
plt.show()
```


In [15]:
```python
y=np.array([10,44,35,98,55,34,20,25])
plt.pie(y,labels=["A","B","C","D","E","F","G","H"],autopct='%2.1f%%')
plt.legend(loc="upper right")
plt.show()
```

In [17]:
```python
y=np.array([10,44,35,98,55,34,20,25])
AA=["A","B","C","D","E","F","G","H"]
CC=['#ADB2D4','#27445D','#2DAA9E','#AA60C8','#872341','#EABDE6','#A6F1E0','#E598
bb=[0,0,0,0,0,0.2,0,1.6]
plt.pie(y,labels=AA,autopct='%2.1f%%',colors=CC,explode=bb)
plt.legend(loc="upper right")
plt.show()
```
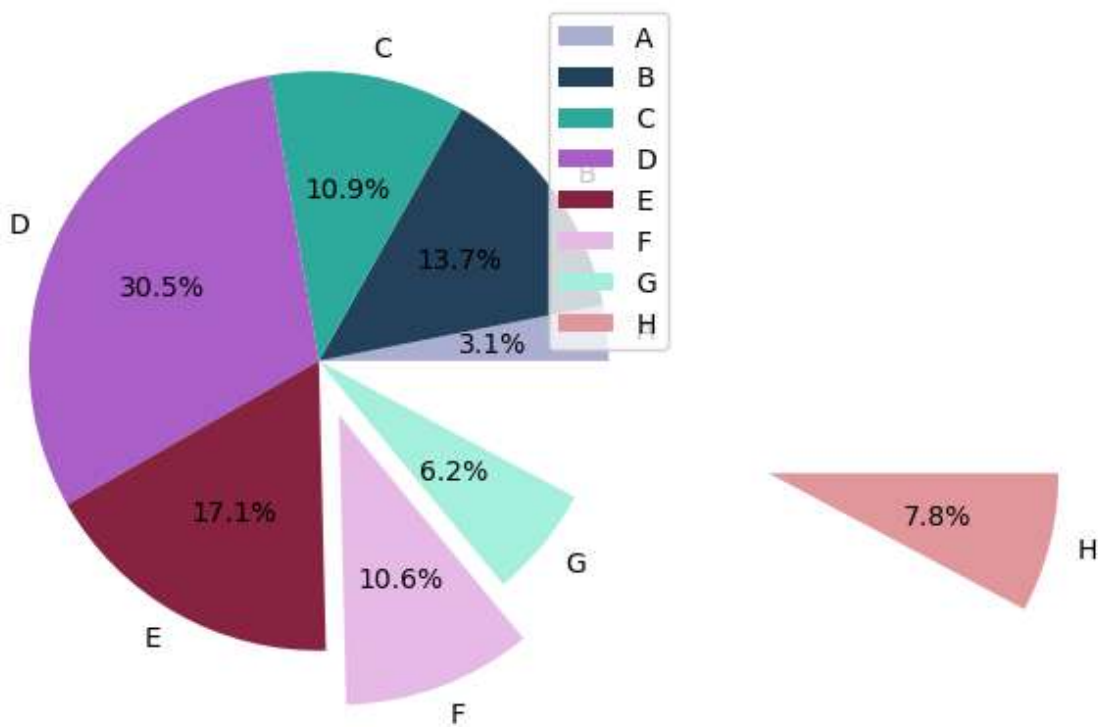

In [19]:
```python
y=np.array([10,44,35,98,55,34,20,25])
AA=["A","B","C","D","E","F","G","H"]
CC=['#ADB2D4','#27445D','#2DAA9E','#AA60C8','#872341','#EABDE6','#A6F1E0','#E598
bb=[0,0,0,0,0,0.2,0,1.6]
plt.pie(y,labels=AA,autopct='%2.1f%%',colors=CC,explode=bb)
```
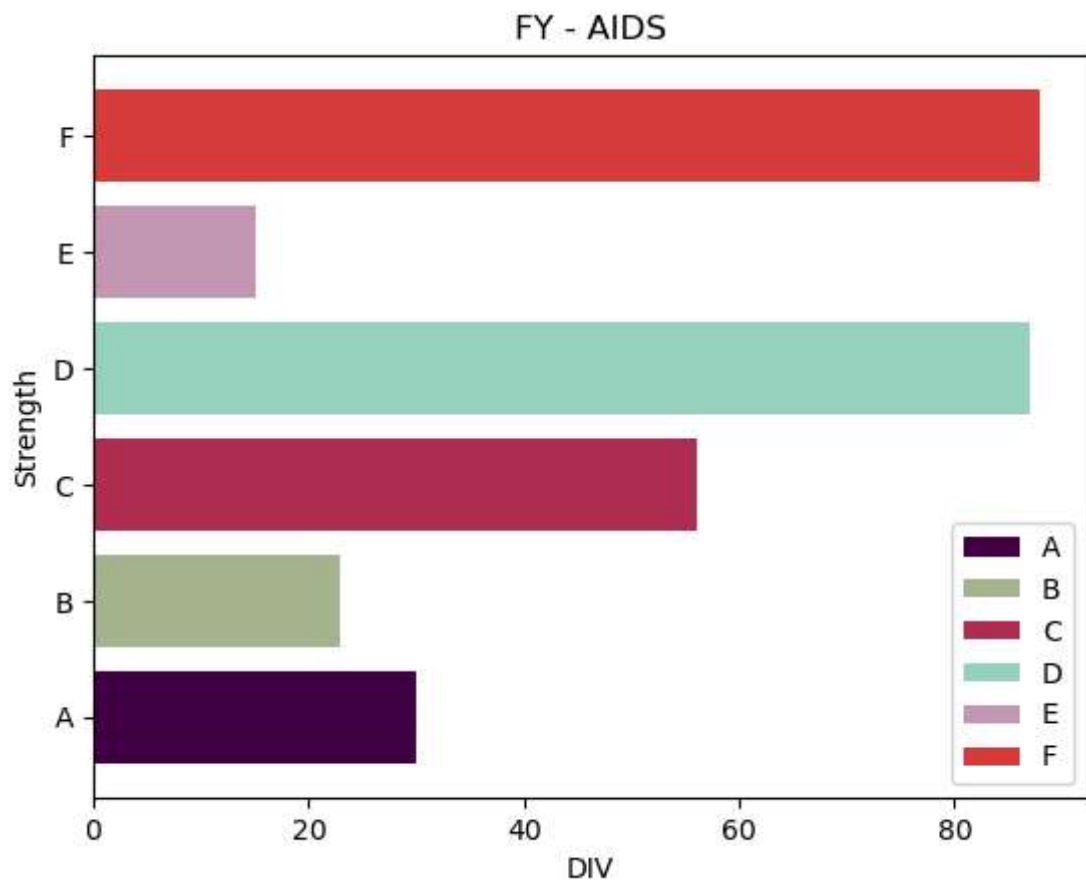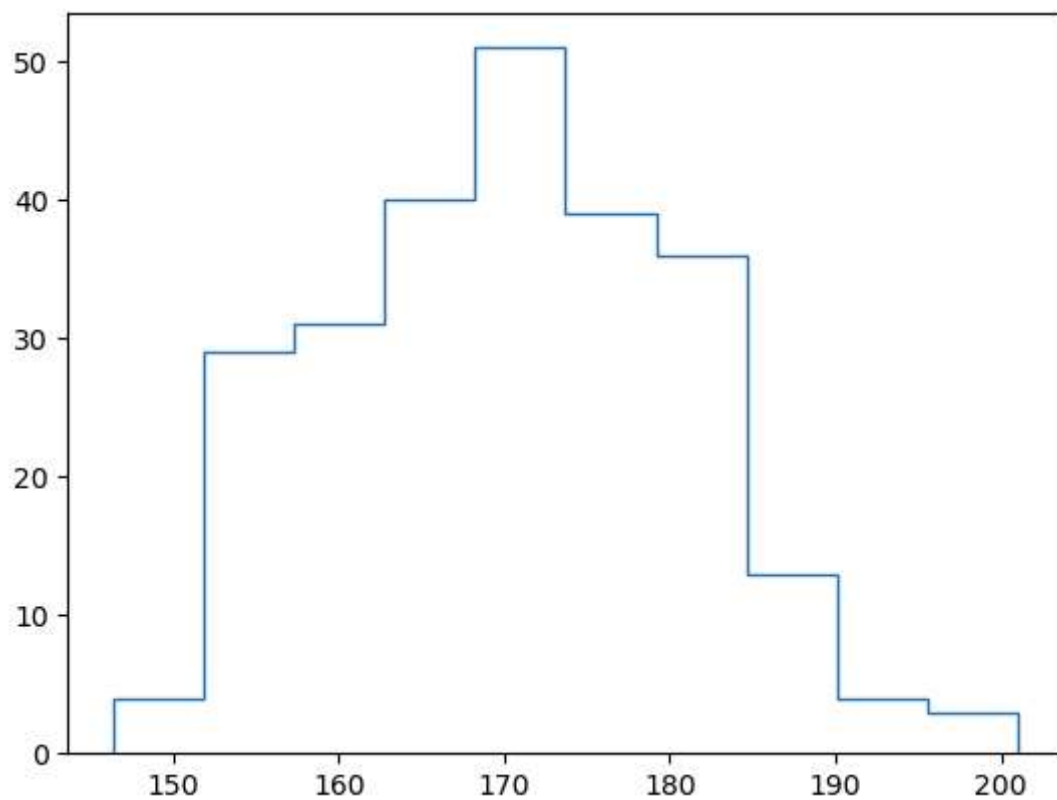
```
plt.legend(loc="upper right",bbox_to_anchor=(1.2,1))
plt.show()
```
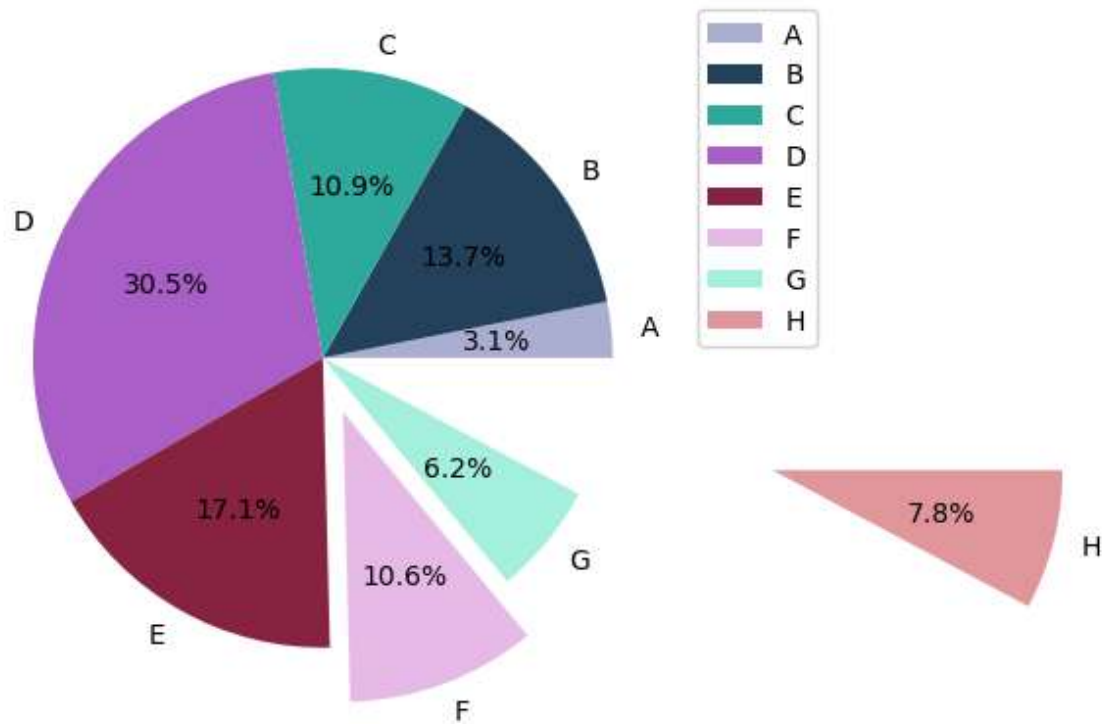

In [21]:
```
y=np.array([30,23,56,87,15,88])
AA=np.array(["A","B","C","D","E","F"])
BB=['#410445','#A5B68D','#B03052','#98D2C0','#C599B6','#D84040']
plt.barh(AA,y,color=BB,label=AA)
plt.title("FY - AIDS")
plt.xlabel("DIV")
plt.ylabel("Strength")
plt.legend()
plt.show()
```
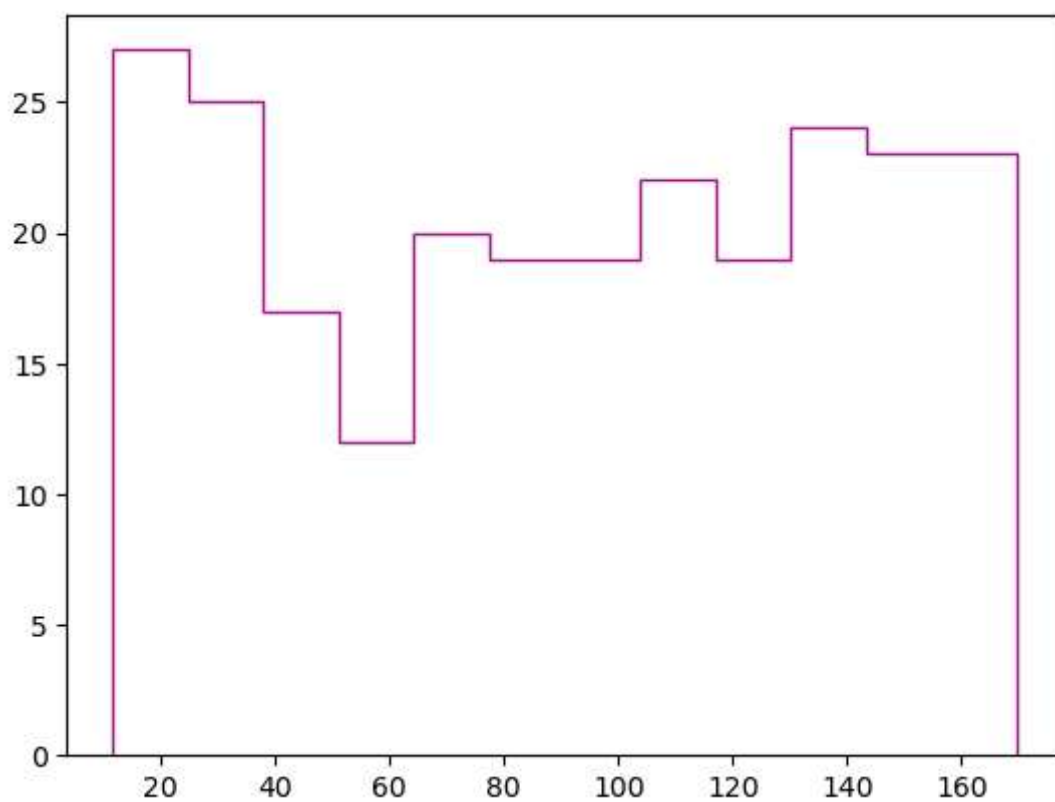
FY - AIDS

In [26]:
```python
x=np.random.normal(170,10,250)
plt.hist(x,histtype='step')
plt.show()
```


In [54]:
```python
x=np.random.normal(170,10,250)
plt.hist(x,histtype='bar',color='#ADB2D4',bins=10,rwidth=1)
plt.show()
```
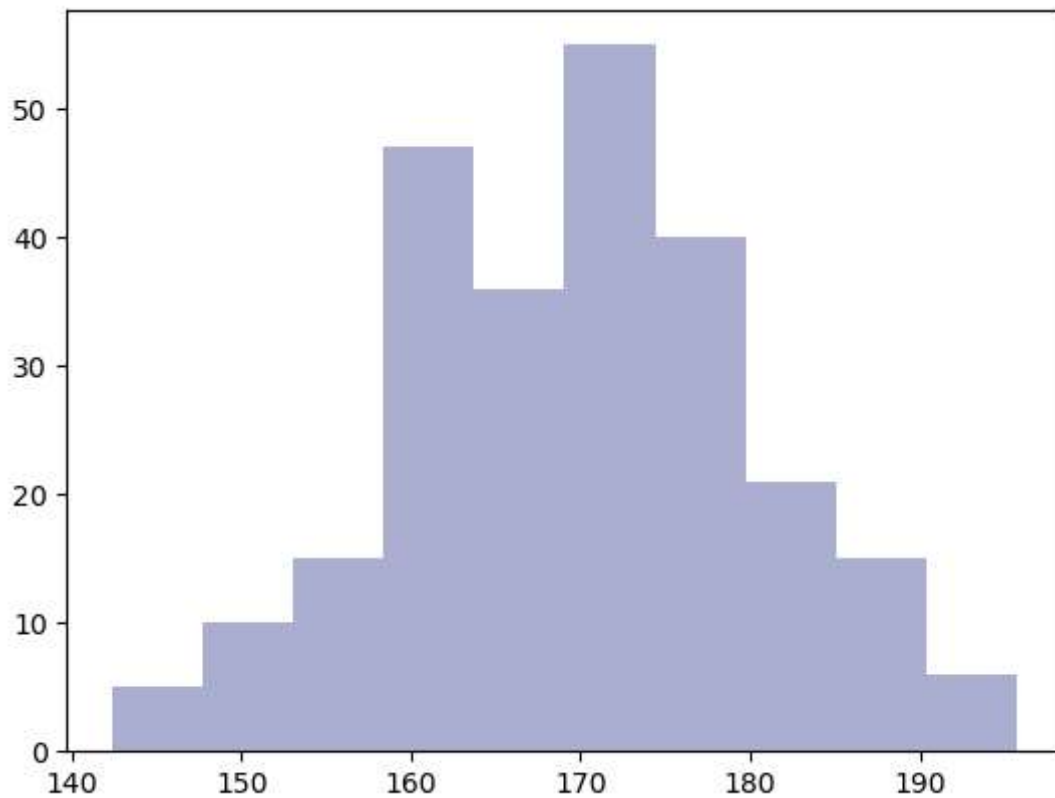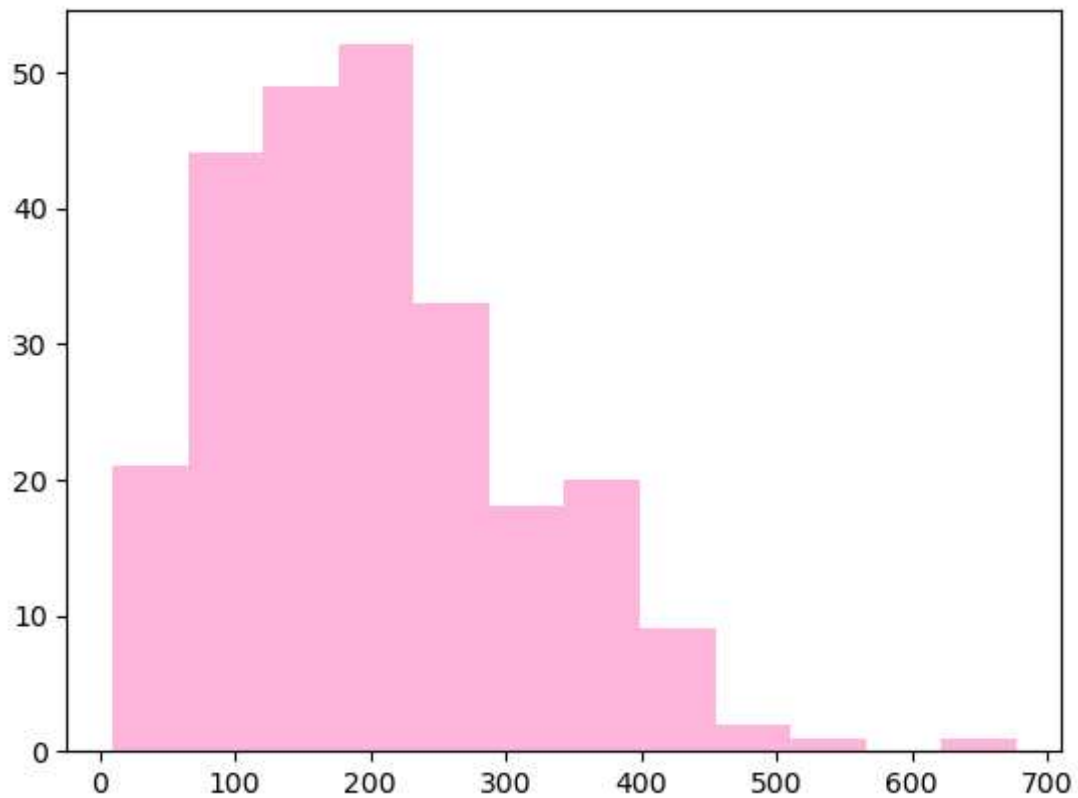
```
In [62]:  x=np.random.uniform(170,10,250)
          plt.hist(x,histtype='step',color='#A5158C',bins=12)
          plt.show()
```
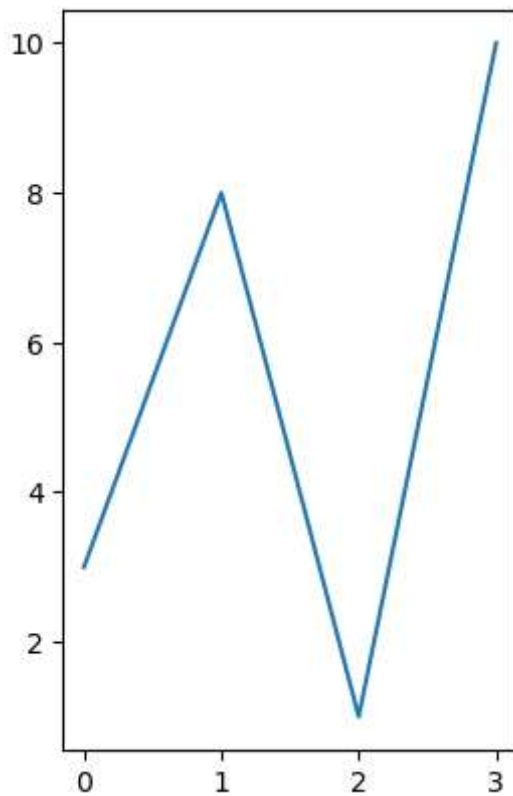


```
In [70]:  x=np.random.rayleigh(170,250)
          plt.hist(x,histtype='barstacked',color='#FFB8E0',bins=12)
          plt.show()
```
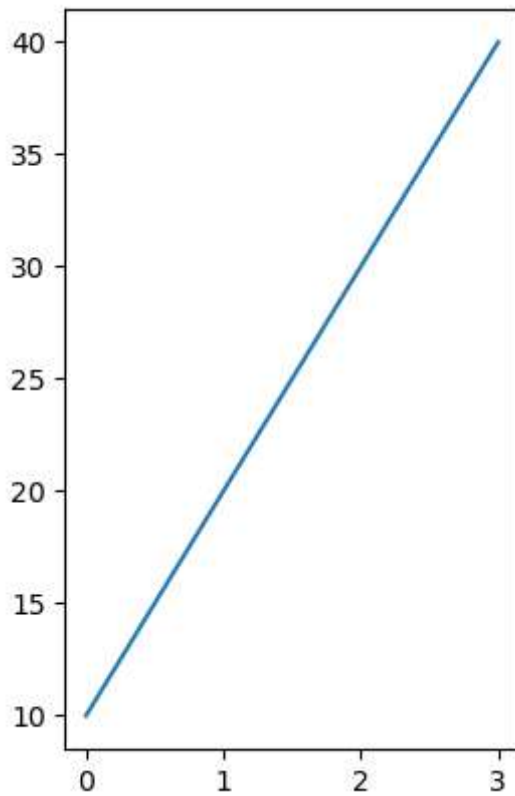
In [86]:
```python
x=np.array([0,1,2,3])
y=np.array([3,8,1,10])
plt.subplot(1,2,1)
plt.plot(x,y)
plt.show()
```
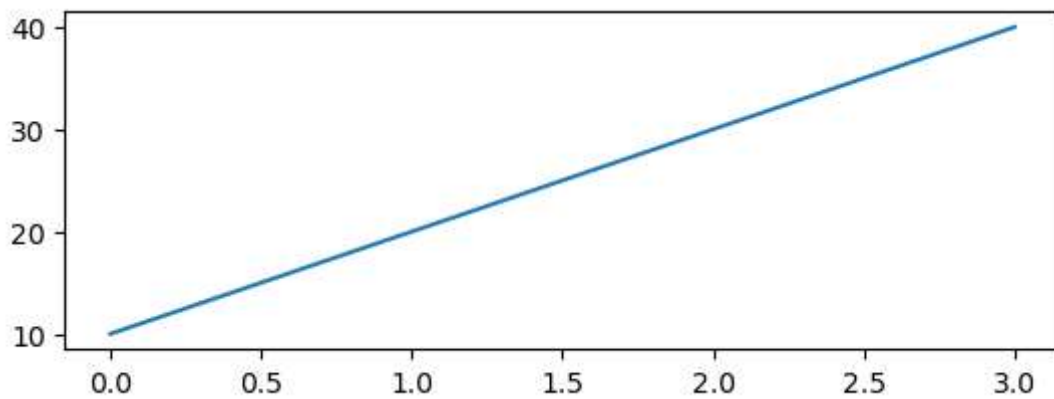

In [84]:
```python
x1=np.array([0,1,2,3])
y1=np.array([10,20,30,40])
plt.subplot(1,2,2)
```

```
plt.plot(x1,y1)
plt.show()
```



```
In [82]:  x2=np.array([0,1,2,3])
          y2=np.array([10,20,30,40])
          plt.subplot(2,1,2)
          plt.plot(x2,y2)
          plt.show()
```



```
In [96]:  #plot1
          x1=np.array([0,1,2,3])
          y1=np.array([10,20,30,40])
          plt.subplot(2,1,1)
          plt.plot(x1,y1)
          #plot2
          x2=np.array([0,1,2,3])
          y2=np.array([10,20,30,40])
          plt.subplot(2,1,2)
          plt.plot(x2,y2)
          plt.show()
```
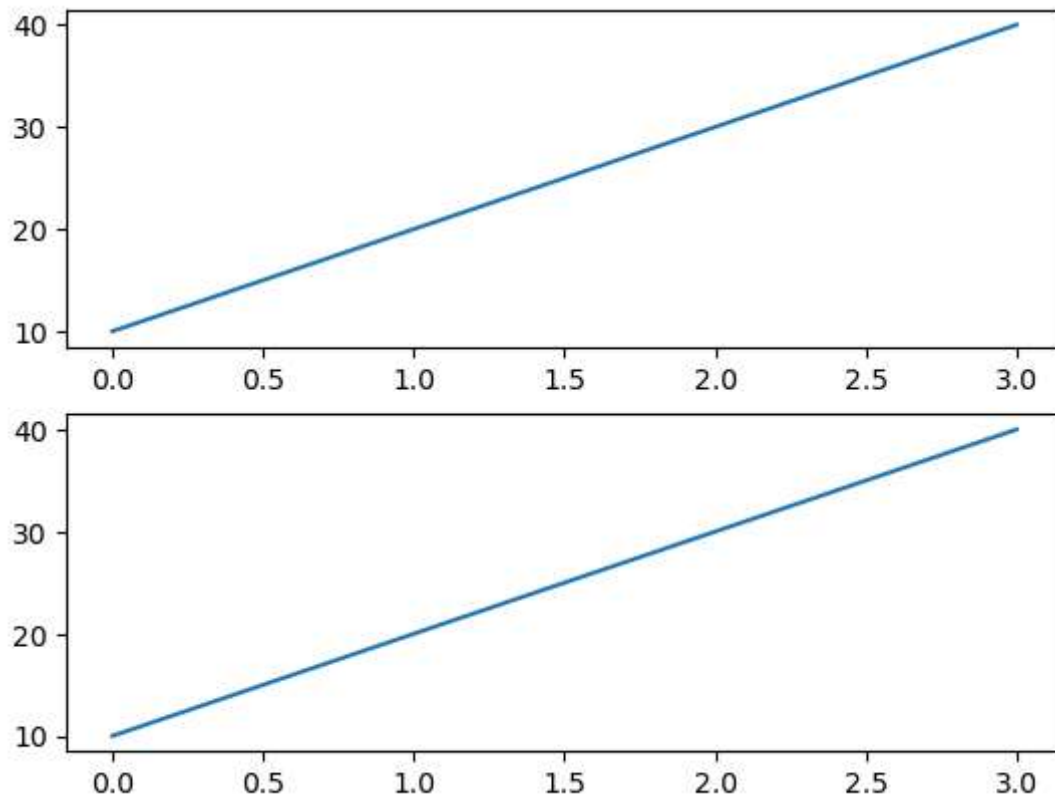
```
In [132…  plt.subplots(figsize=(20,20))
          #plot0
          x=np.array([1,2,3,4,5])
          y=np.array([22,55,99,88,12])
          plt.subplot(3,2,1)
          plt.plot(x,y,'D:g',ms=10)

          #plot1
          y=np.array([30,23,56,87,15,88])
          AA=np.array(["A","B","C","D","E","F"])
          BB=['#410445','#A5B68D','#B03052','#98D2C0','#C599B6','#D84040']
          plt.subplot(3,2,2)
          plt.bar(AA,y,color=BB,label=AA)
          plt.title("FY - AIDS")
          plt.xlabel("DIV")
          plt.ylabel("Strength")

          plt.legend()

          #plot2
          x=np.array([1,2,3,4,5,6,7])
          y=np.array([22,55,99,88,12,2.5,35])
          plt.subplot(3,2,3)
          plt.scatter(x,y,marker="D",c='#410445')
          plt.title("Events")
          plt.xlabel("weight")
          plt.ylabel("height")


          #plot3
          x=np.random.rayleigh(170,250)
          plt.subplot(3,2,4)
          plt.hist(x,histtype='barstacked',color='#FFB8E0',bins=12)
```
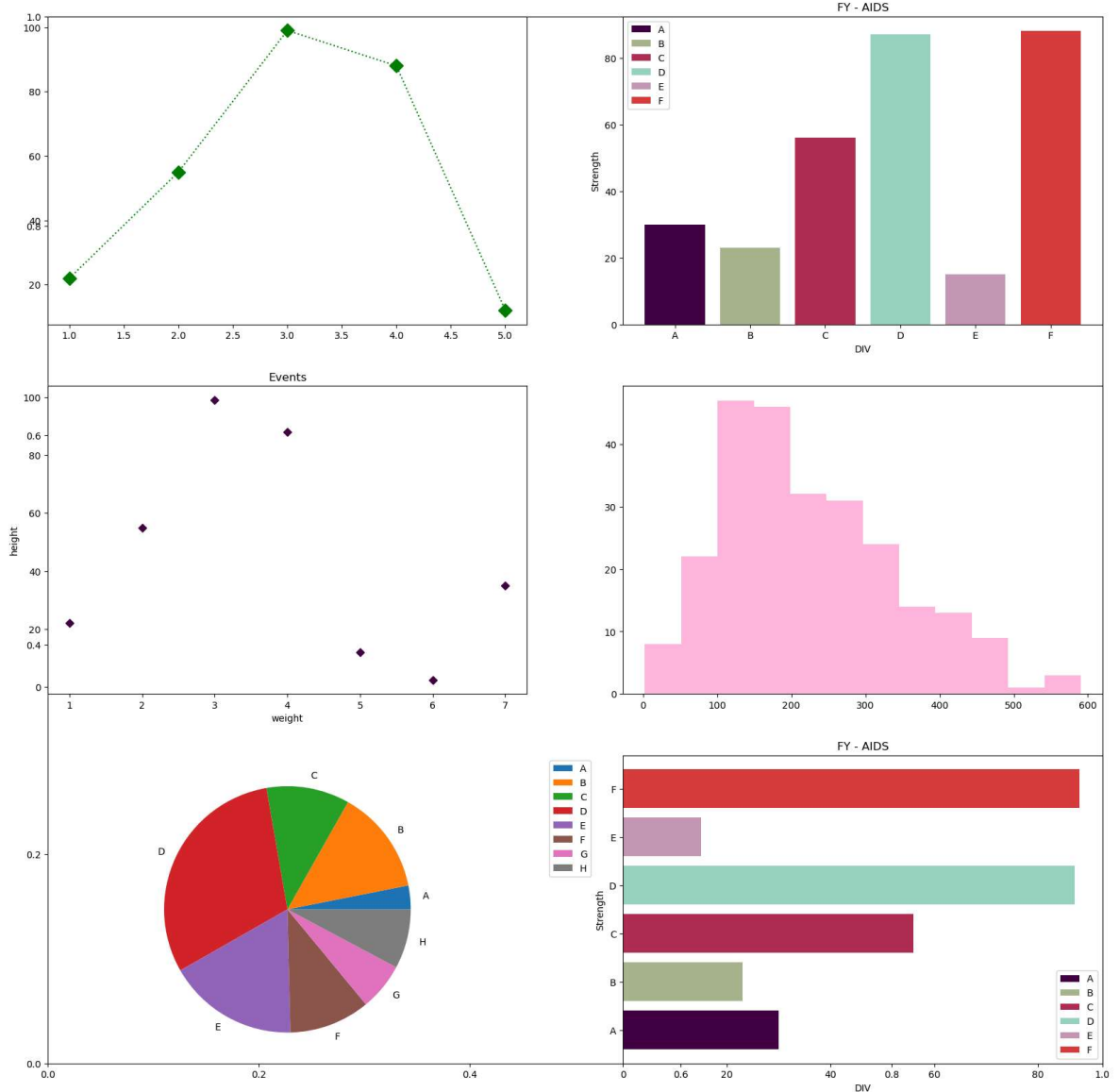
```
#plot4
y=np.array([10,44,35,98,55,34,20,25])
plt.subplot(3,2,5)
plt.pie(y,labels=["A","B","C","D","E","F","G","H"])
plt.legend(loc="upper right",bbox_to_anchor=(1.5,1))

#plot5
y=np.array([30,23,56,87,15,88])
AA=np.array(["A","B","C","D","E","F"])
BB=['#410445','#A5B68D','#B03052','#98D2C0','#C599B6','#D84040']
plt.subplot(3,2,6)
plt.barh(AA,y,color=BB,label=AA)
plt.title("FY - AIDS")
plt.xlabel("DIV")
plt.ylabel("Strength")

plt.legend()
plt.show()
```
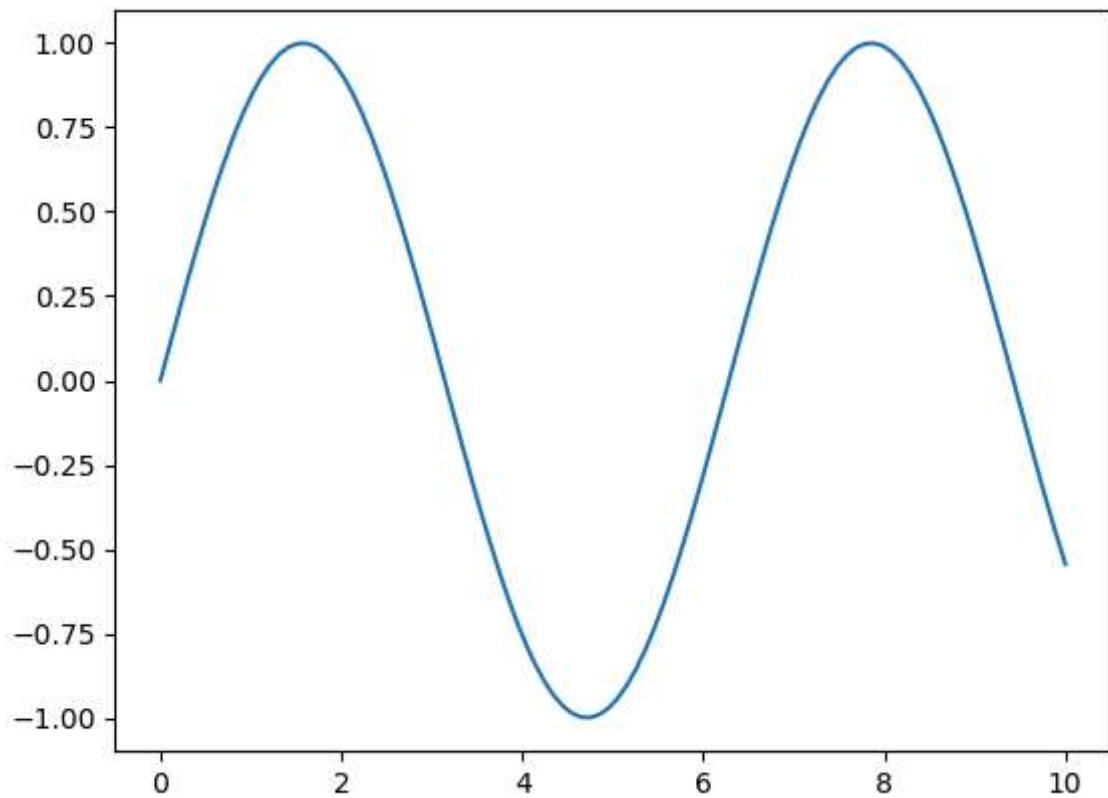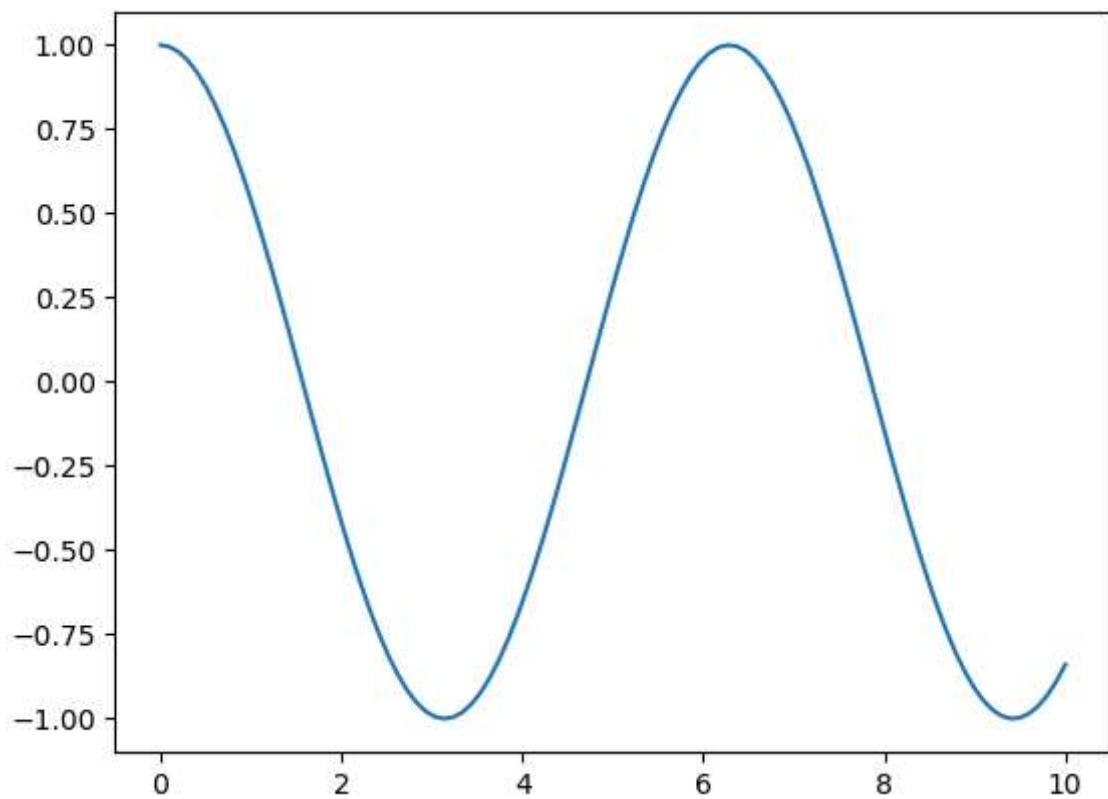


```
x=np.linspace(0,10,100)
plt.plot(x,np.sin(x))
plt.show()
```
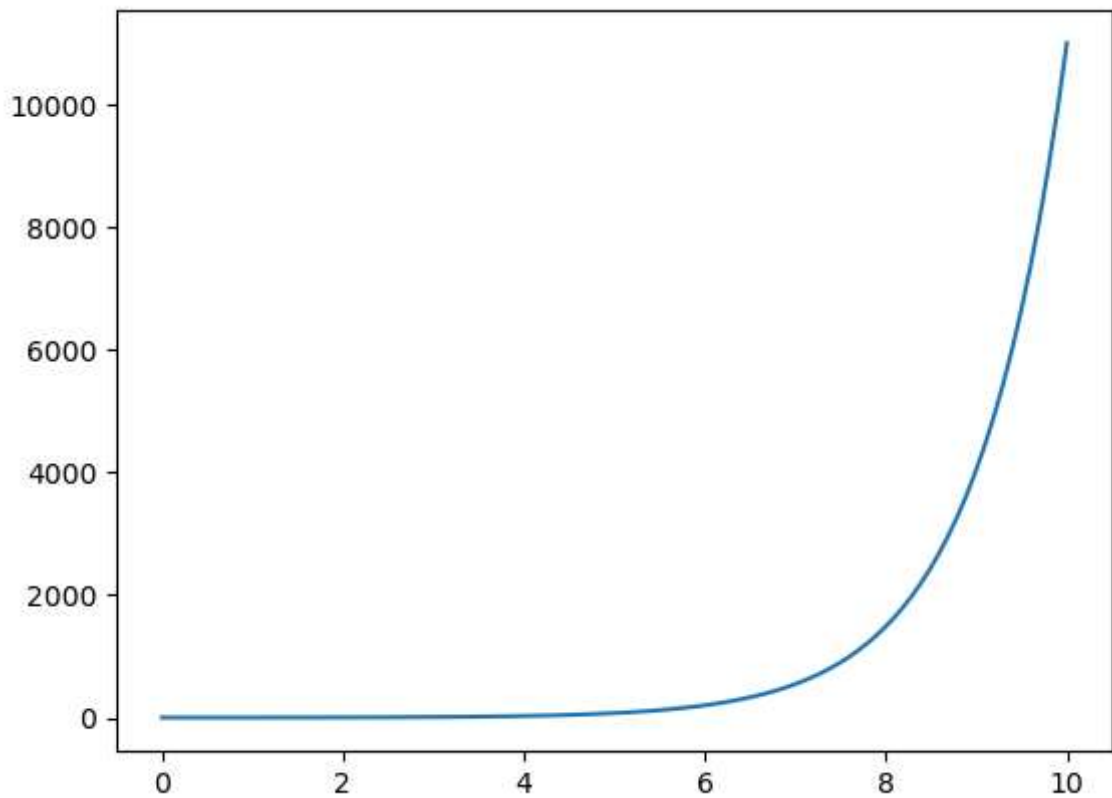
```
x=np.linspace(0,10,100)
plt.plot(x,np.cos(x))
plt.show()
```



```
x=np.linspace(0,10,100)
plt.plot(x,np.cosh(x))
plt.show()
```
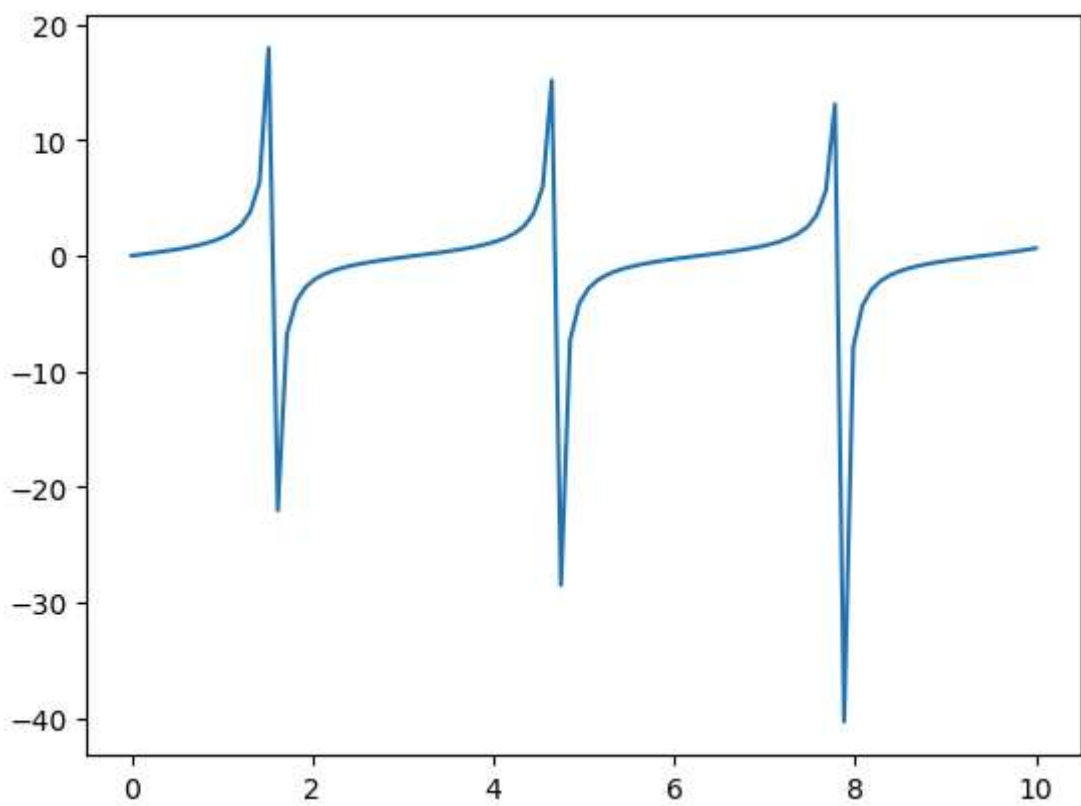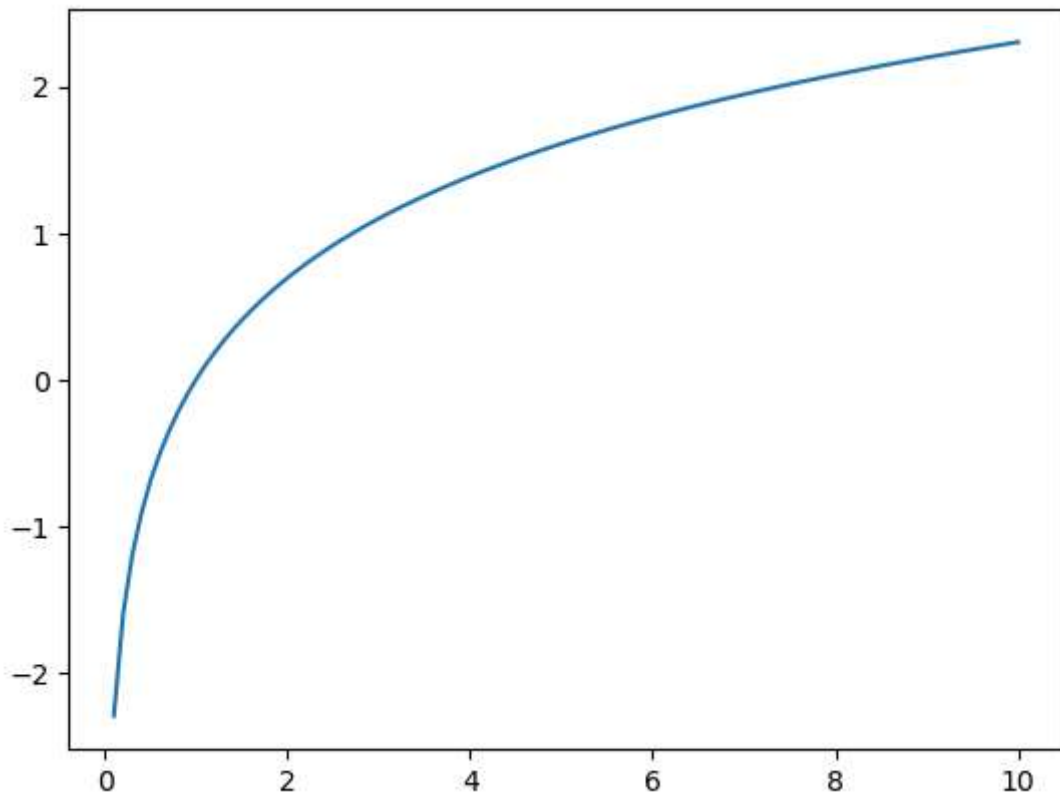
```
x=np.linspace(0,10,100)
plt.plot(x,np.tan(x))
plt.show()
```
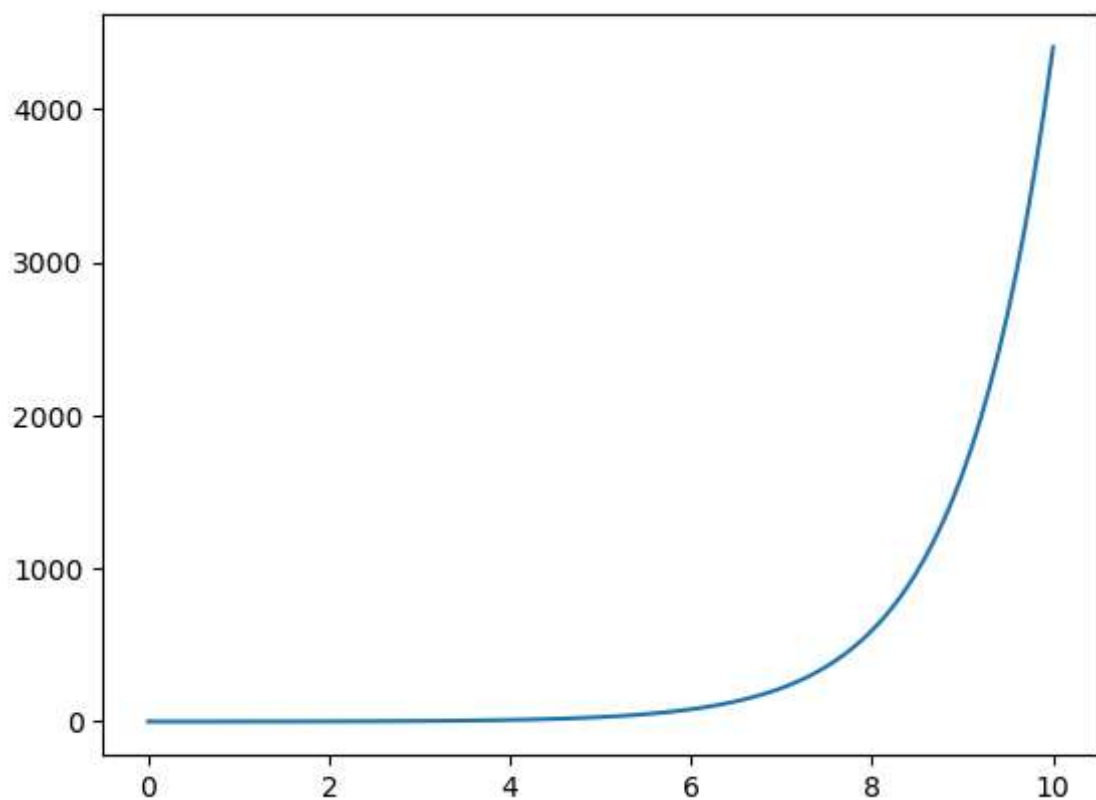


```
x=np.linspace(0,10,100)
plt.plot(x,np.log(x))
plt.show()
```

```
C:\Users\Purva\AppData\Local\Temp\ipykernel_20072\4217949946.py:2: RuntimeWarnin
g: divide by zero encountered in log
  plt.plot(x,np.log(x))
```


In [148…

```python
x=np.linspace(0,10,100)
a=0.2
y=a*(np.exp(x))
plt.plot(x,y)
plt.show()
```

```python
#plot1
x=np.linspace(0,10,100)
plt.subplot(3,2,1)
plt.plot(x,np.sin(x))

#plot2
x=np.linspace(0,10,100)
plt.subplot(3,2,2)
plt.plot(x,np.cos(x))

#plot3
x=np.linspace(0,10,100)
plt.subplot(3,2,3)
plt.plot(x,np.tan(x))

#plot4
x=np.linspace(0,10,100)
plt.subplot(3,2,4)
plt.plot(x,np.log(x))

#plot5
x=np.linspace(0,10,100)
a=0.2
y=a*(np.exp(x))
plt.subplot(3,2,5)
plt.plot(x,y)

#plot6
x=np.linspace(0.,10,100)
m=0.8
c=2
y=(m*x)+c
plt.subplot(3,2,6)
plt.plot(x,y)
plt.show()
```
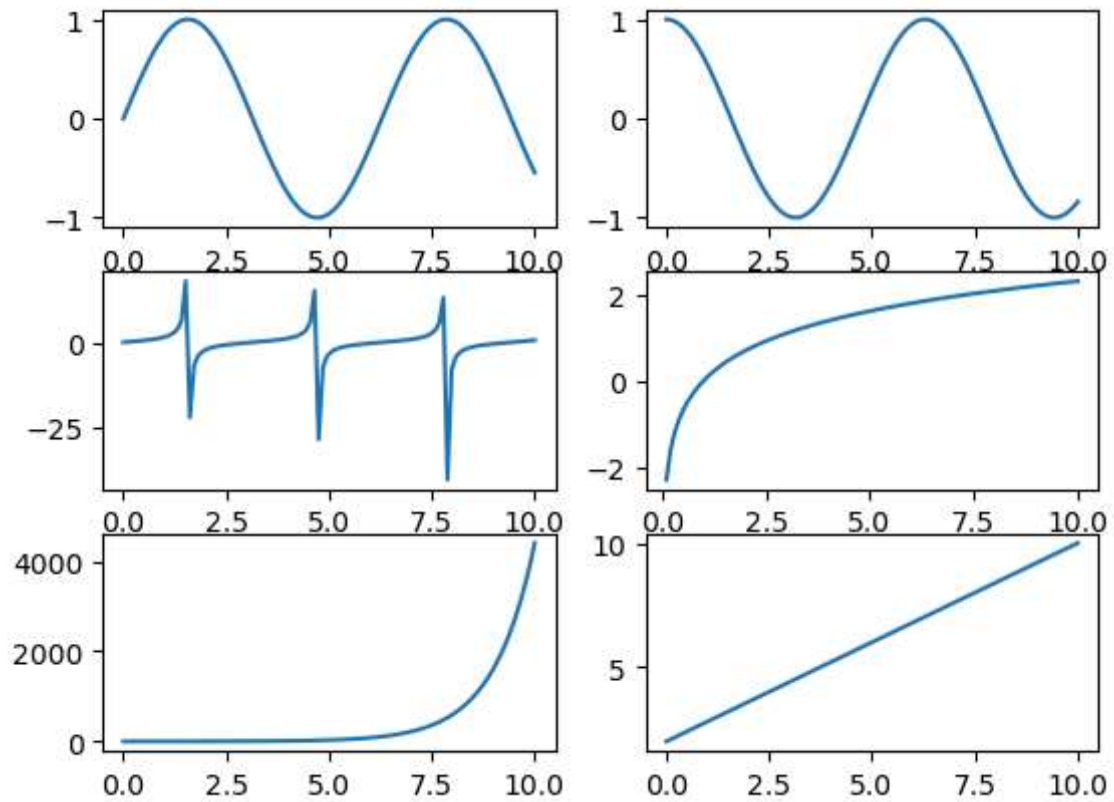
```
C:\Users\Purva\AppData\Local\Temp\ipykernel_20072\425753772.py:19: RuntimeWarnin
g: divide by zero encountered in log
  plt.plot(x,np.log(x))
```
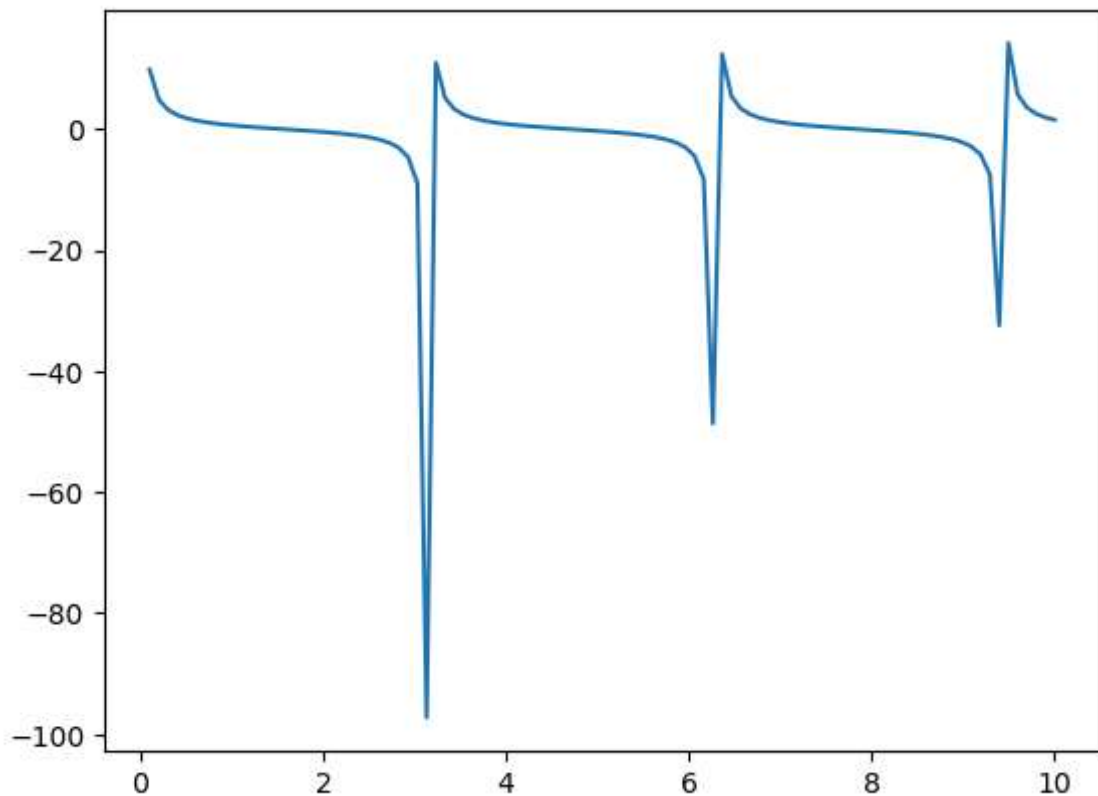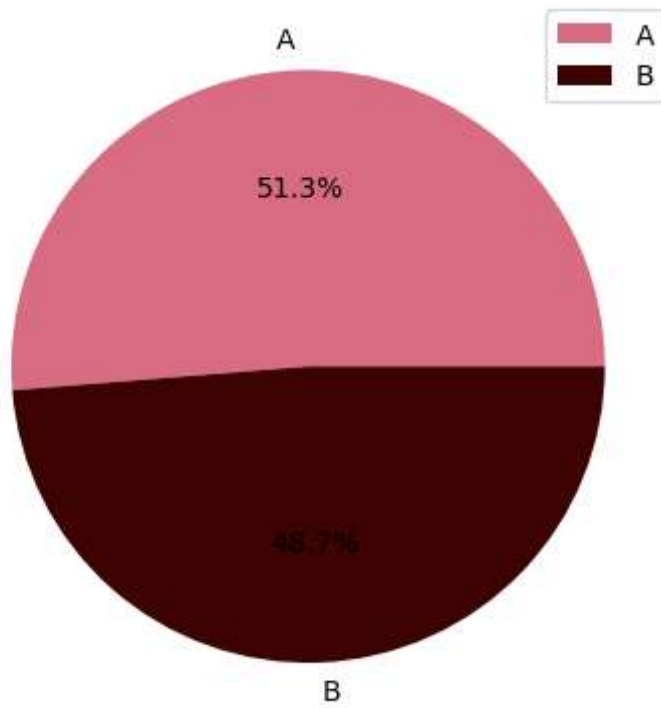
```
In [156…    x=np.linspace(0,10,100)
            x1=np.sin(x)
            x2=np.cos(x)
            cot=x2/x1
            plt.plot(x,cot)
            plt.show()
```

C:\Users\Purva\AppData\Local\Temp\ipykernel_20072\4291235407.py:4: RuntimeWarnin
g: divide by zero encountered in divide
  cot=x2/x1

In [160...
```python
y=np.array([60,57])
AA=["A","B"]
CC=['#D76C82','#3D0301']
plt.pie(y,labels=AA,autopct='%2.1f%%',colors=CC)
plt.legend()
plt.show()
```


In [ ]: