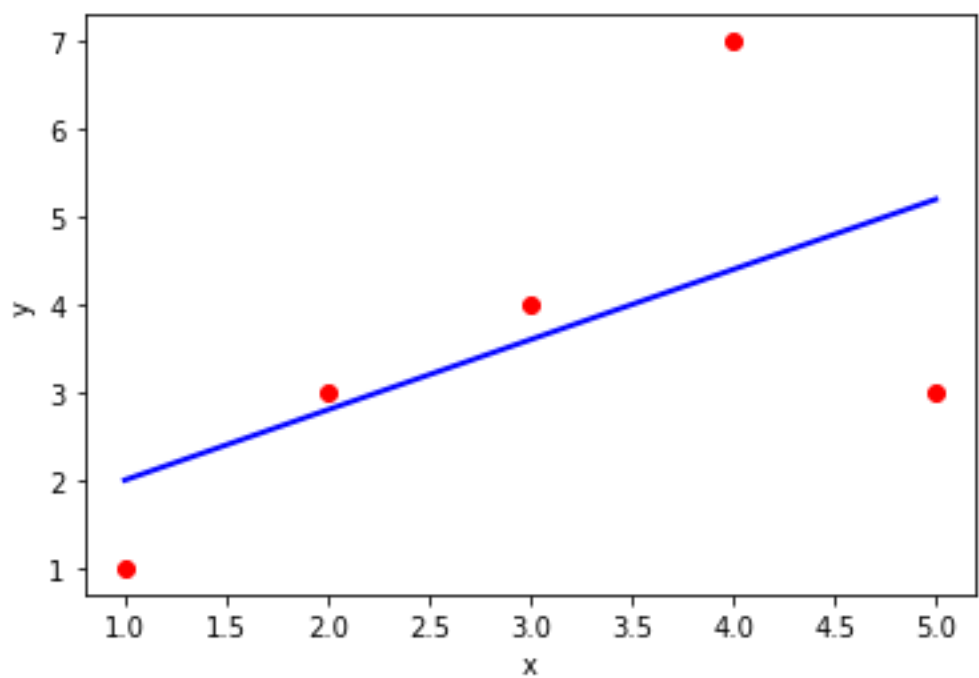# Program 02

```
%matplotlib inline
import matplotlib.pyplot as plt
import numpy as np
from sklearn.linear_model import LinearRegression
from sklearn.linear_model import SGDRegressor
x=np.array([1,2,3,4,5])
y=np.array([1,3,4,7,3])
print(x.shape)
print(y.shape)
print(x)
print(y)
x=x.reshape(-1,1)
print(x.shape)
print(x)
model=LinearRegression()
model.fit(x,y)
print(model.predict([[8]]))
y_pred=model.predict(x)
plt.scatter(x,y,color='r',marker='o')
plt.plot(x,y_pred,color='b',linewidth=2)
plt.xlabel('x')
plt.ylabel('y')
plt.show()
print(model.coef_)
```

output

```
(5,)
(5,)
[1 2 3 4 5]
[1 3 4 7 3]
(5, 1)
[[1]
 [2]
 [3]
 [4]
 [5]]
[7.6]
```

[0.8]
[10.61830486]