In [51]:
```python
import pandas as pd
df = pd.read_csv('./dataset 2.csv')
df.head()
```

Out[51]:

	X1	X2
0	1	1
1	3	5
2	7	5

In [52]:
```python
import matplotlib.pyplot as plt
plt.scatter(df.X1, df.X2)
```

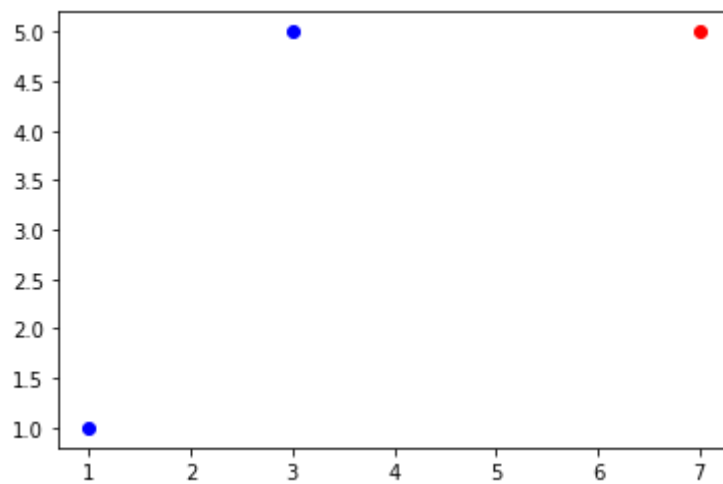Out[52]: <matplotlib.collections.PathCollection at 0x24f72654970>
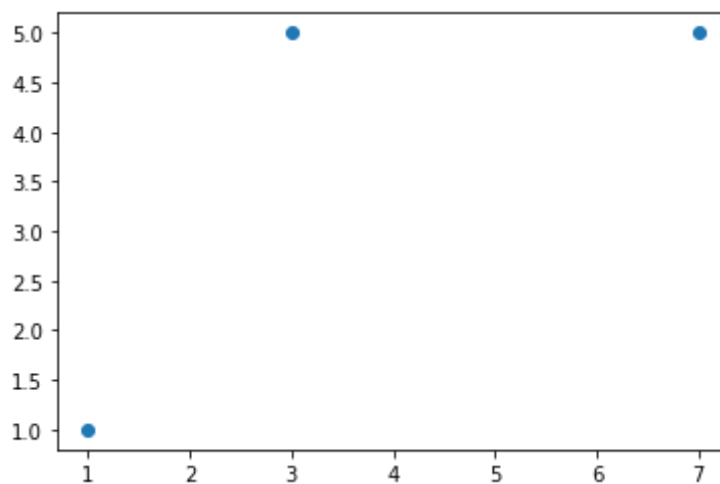
In [53]:
```python
x = df[['X1']].to_numpy()
y = df[['X2']].to_numpy()
```

In [54]:
```python
from sklearn.model_selection import train_test_split
x_train, x_test, y_train, y_test = train_test_split(x, y, test_size=0.3, random_stat
```

In [55]:
```python
plt.scatter(x_train, y_train, color ='blue')
plt.scatter(x_test, y_test, color ='red')
```

Out[55]: <matplotlib.collections.PathCollection at 0x24f726b7bb0>

In [56]:
```python
from sklearn.linear_model import LinearRegression
from sklearn.metrics import mean_squared_error

lr = LinearRegression()
lr.fit(x_train, y_train)
y_pred = lr.predict(x_test)
print(mean_squared_error(y_test, y_pred))
```
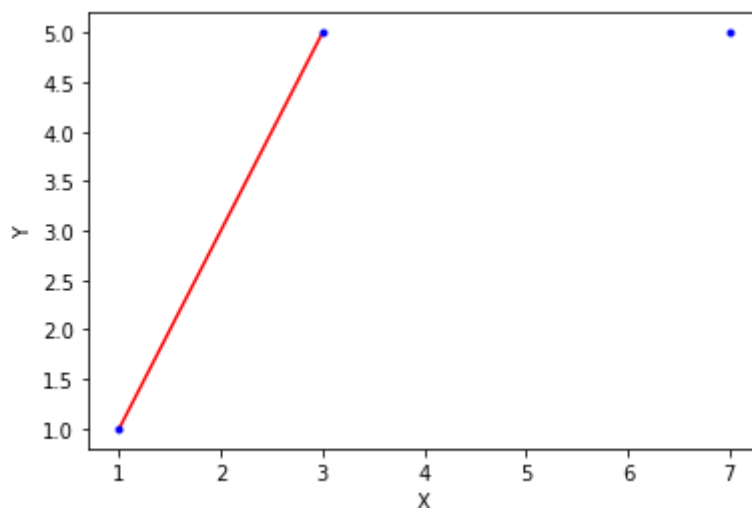
63.99999999999994

In [57]:
```python
plt.plot(x_train, lr.predict(x_train), color="r")
plt.plot(x, y, "b.")
plt.xlabel("X")
plt.ylabel("Y")
plt.show()
```


In [58]:
```python
from sklearn import linear_model

ridge = linear_model.Ridge(alpha=.8)
ridge.fit(x_train, y_train)
y_pred_ridge = ridge.predict(x_test)
print(mean_squared_error(y_test, y_pred_ridge))
```
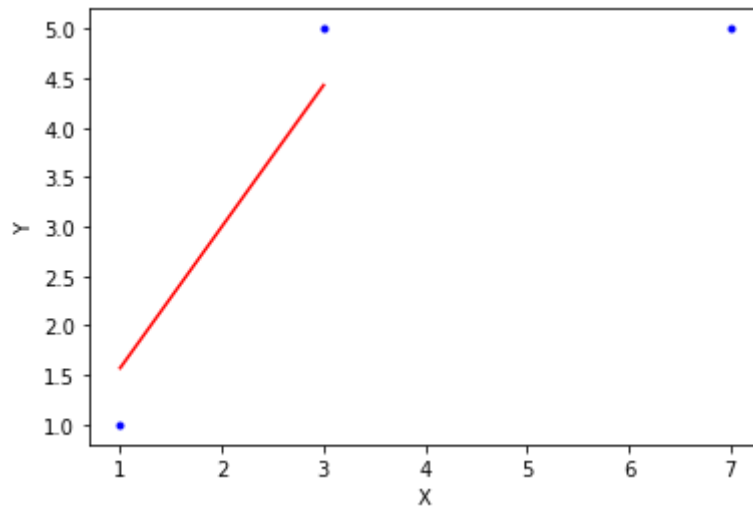
26.44897959183673

In [59]:
```python
plt.plot(x_train, ridge.predict(x_train), color="r")
plt.plot(x, y, "b.")
plt.xlabel("X")
```

```python
plt.ylabel("Y")
plt.show()
```


In [60]:
```python
lasso = linear_model.Lasso(alpha=.8)
lasso.fit(x_train, y_train)
y_pred_lasso = lasso.predict(x_test)
print(mean_squared_error(y_test, y_pred_lasso))
```

16.0

In [61]:
```python
plt.plot(x_train, lasso.predict(x_train), color="r")
plt.plot(x, y, "b.")
plt.xlabel("X")
plt.ylabel("Y")
plt.show()
```