```python
X = [1, 2, 3, 4, 5]

y = [2, 4, 5, 4, 5]

n = len(X)

x_mean = sum(X)/n

y_mean = sum(y)/n

num = sum((X[i]-x_mean)*(y[i]-y_mean) for i in range(n))

den = sum((X[i]-x_mean)**2 for i in range(n))

m = num/den

c = y_mean - m*x_mean

y_lin = [m*X[i]+c for i in range(n)]

sum_x = sum(X)

sum_x2 = sum(x**2 for x in X)

sum_x3 = sum(x**3 for x in X)

sum_x4 = sum(x**4 for x in X)

sum_y = sum(y)

sum_xy = sum(X[i]*y[i] for i in range(n))

sum_x2y = sum((X[i]**2)*y[i] for i in range(n))

D = n*(sum_x2*sum_x4 - sum_x3**2) - sum_x*(sum_x*sum_x4 - sum_x2*sum_x3) +
sum_x2*(sum_x*sum_x3 - sum_x2**2)

Da = sum_y*(sum_x2*sum_x4 - sum_x3**2) - sum_x*(sum_xy*sum_x4 - sum_x2*sum_x2y) +
sum_x2*(sum_xy*sum_x3 - sum_x2*sum_x2y)

Db = n*(sum_xy*sum_x4 - sum_x2*sum_x2y) - sum_y*(sum_x*sum_x4 - sum_x2*sum_x3) +
sum_x2*(sum_x*sum_x2y - sum_xy*sum_x2)

Dc = n*(sum_x2*sum_x2y - sum_x3*sum_xy) - sum_x*(sum_x*sum_x2y - sum_xy*sum_x2) +
sum_y*(sum_x*sum_x3 - sum_x2**2)


a = Da / D

b = Db / D

c_poly = Dc / D

y_poly = [a*X[i]**2 + b*X[i] + c_poly for i in range(n)]


print("Linear Regression Predictions:", y_lin)
```

```python
print("Polynomial Regression Predictions:", y_poly)
```

OUTPUT:

```
>>>
        ========== RESTART: C:/Users/prast/OneDrive/Desktop/ML LAB/EXP 9.py ==========
        Linear Regression Predictions: [2.8000000000000003, 3.4000000000000004, 4.0, 4.6, 5.2]
        Polynomial Regression Predictions: [-609.7714285714286, -3054.8571428571427, -7335.5428571428565, -13451.82857142857, -21403.714285714286]
>>>
```