1. N = Total Profit

P = Per Unit Price

C = Per Unit Cost

Per Unit Profit = P-C

Total Profit: N = (P-C) \* Q

Total Profit = Per unit profit \* number of quantities sold

1. The equation is estimated based on the data given. As price increase the quantity sold decreases and vice versa. Based on this relation we have the equation for the data: Q = e^4.7P^(-1.62)

We took log values of demand equation to make the equation linear. Then we estimated that equation using the price and sales data. Once we got the parameters alpha and beta, we took their antilog values and wrote the equation in terms of alpha, beta and P. This is constant elasticity demand curve where elasticity is equal to beta.

1. I can substitute Q of equation 1 for the Q value in equation 2.

This gives total profit: N = (P-C) \*e^4.7P^(-1.62).

1. So, we can maximize profit by calculating dN/dP = 0. That will give price of profit maximization. In Economics this is the point where marginal revenue is equal to marginal cost. In this question since C is constant marginal cost is equal to C.