

Marginal Revenue, Cost and Profit Handout

In a competitive market, the Revenue function for a business producing a single item is

$$R(x) = (\text{equilibrium price})(x), \text{ where } x \text{ is the number of items sold.}$$

In a monopoly market, the Revenue function for a business producing a single item is

$$R(x) = (p(x))(x), \text{ where } p(x) \text{ is the demand function for the item and } x \text{ is the number of items sold.}$$

Sample Problems:

1) If the price of an item in a competitive market is \$200, find the following. Use marginal analysis to answer questions c and d.

a) What is the Revenue function?

b) What is the Marginal Revenue function?

c) If you are currently producing 10 items, how will your revenue change if you produce 5 more?

d) If you increase production from 5 to 8 items, how will your revenue change?

2) If the demand function for a product in a monopoly market is $p = 18 - 0.02x$, where x is the number of items produced and p is the price per item in dollars, find the following. Use marginal analysis to answer questions c and d.

a) What is the Revenue function?

b) What is the Marginal Revenue function?

c) If you are currently producing 10 items, how will your revenue change if you produce 5 more?

d) If you increase production from 5 to 8 items, how will your revenue change?

3) If the demand function for a product in a monopoly market is $p = 18 - 0.02x$, where x is the number of items produced and p is the price per item in dollars, find the following. Use marginal analysis to answer questions c and d.

a) What is the Revenue function?

b) What is the Marginal Revenue function?

c) If you are currently producing 25 items, how will your revenue change if you produce 10 more?

d) If you increase production from 15 to 20 items, how will your revenue change?

4) If the demand function for a product in a monopoly market is $p = 16 - 0.04x$, where x is the number of items produced and p is the price per item in dollars, find the following. Use marginal analysis to answer questions c and d.

a) What is the Revenue function?

b) What is the Marginal Revenue function?

c) If you are currently producing 100 items, how will your revenue change if you produce 10 more?

d) If you increase production from 140 to 170 items, how will your revenue change?

e) Use your marginal revenue function to find the maximum revenue and how many items to achieve that maximum revenue.

f) What is the price of your item when you achieve maximum revenue?

5) Suppose your cost per item in a business is $20 + 0.1x$ dollars, where x is how many items are produced per week and the cost is in dollars. Suppose that this is a monopoly market and the demand function is: $p = 29 - 0.05x$. Answer the following questions for this business.

a) What is the Cost function?

b) What is the Revenue function?

c) What is the Profit function?

d) What is the marginal cost of producing 20 items?

e) If I increase production from 40 to 70 items, use marginal analysis to tell how my revenue will change.

f) Use the marginal profit function to tell what the maximum profit is.

g) What is the price of you item when profit is maximized?