

Calculus in Action

1. Thoughts about Marginal Revenue:

(a) Assume you run a business. What would marginal revenue mean to you?

(b) What is the relationship between marginal revenue and the price of the item for sale?

(c) If you are a business owner in a reasonably competitive market, how would you go about finding the marginal revenue for your business?

2. The following gives the price per unit and the marginal costs (MC) for a company producing q units. Notice that the company provides additional discounts as the quantity of the order placed is increased. This tactic is often used to encourage buyers to buy more goods.

q	5000	6000	7000	8000	9000	10000
price/unit	60	58	56	55	54	53
MC	48	52	54	55	58	63

(a) If current production is 6000 units, should production increase or decrease? Why?

(b) Estimate the production level that would maximize profit.

3. The demand equation for a product is $p = 45 - .01q$.
- (a) Write the revenue as a function of q .

 - (b) Find the quantity that maximizes revenue. What is the price that corresponds to this quantity?

 - (c) What is the total revenue at this price?
4. At a price of \$8 per ticket, a musical theater group can fill every seat in the theater, which has a capacity of 1500. For every additional dollar charged, the number of people buying tickets decreases by 75. What ticket price maximizes revenue?