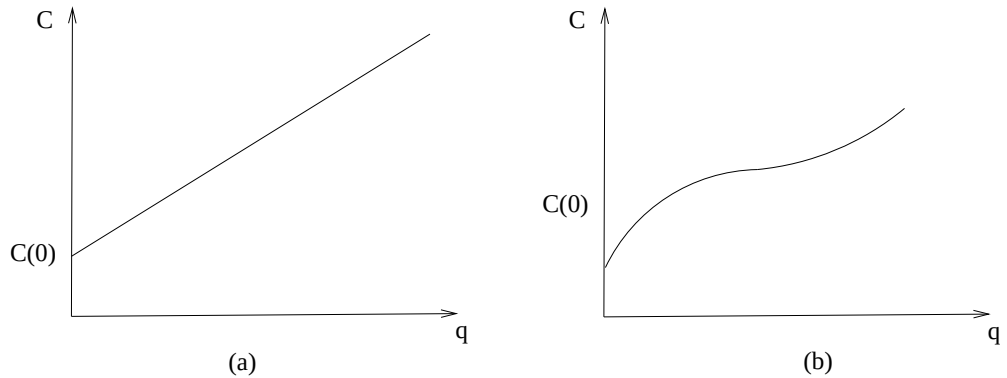
Marginal Cost and Revenue

October 15, 2013

Cost function

Management decisions within a particular firm or industry usually depend on the costs and revenues involved.

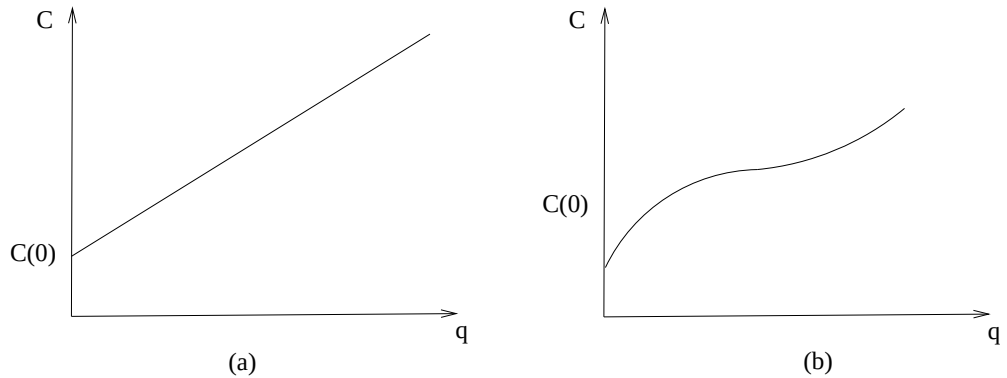
- $C(q)$ is increasing



Cost function

Management decisions within a particular firm or industry usually depend on the costs and revenues involved.

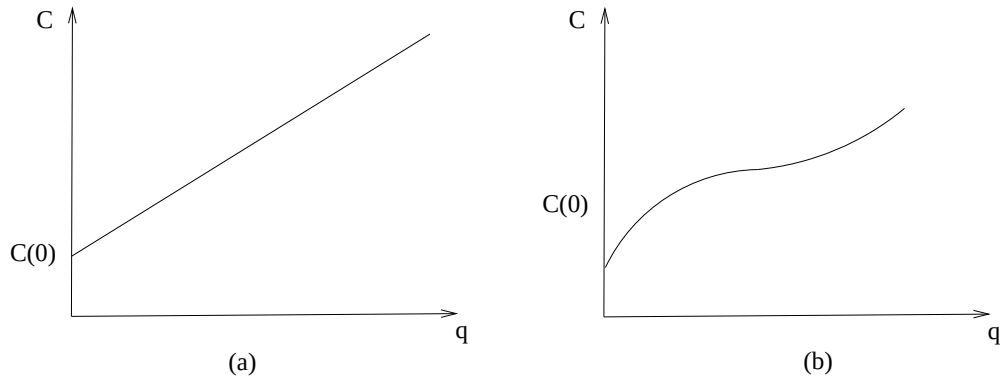
- $C(q)$ is increasing
- $C(0) = ?$



Cost function

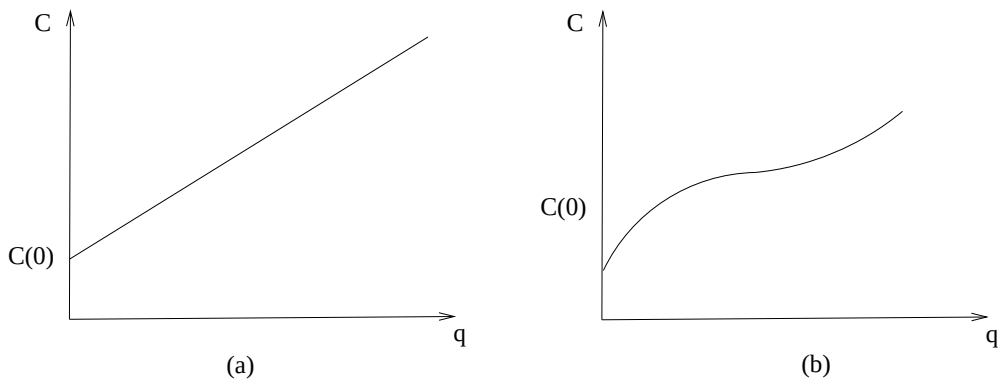
Management decisions within a particular firm or industry usually depend on the costs and revenues involved.

- $C(q)$ is increasing
- $C(0) = ?$
- $C(q) = C(0) + (\text{Marginal cost})q$



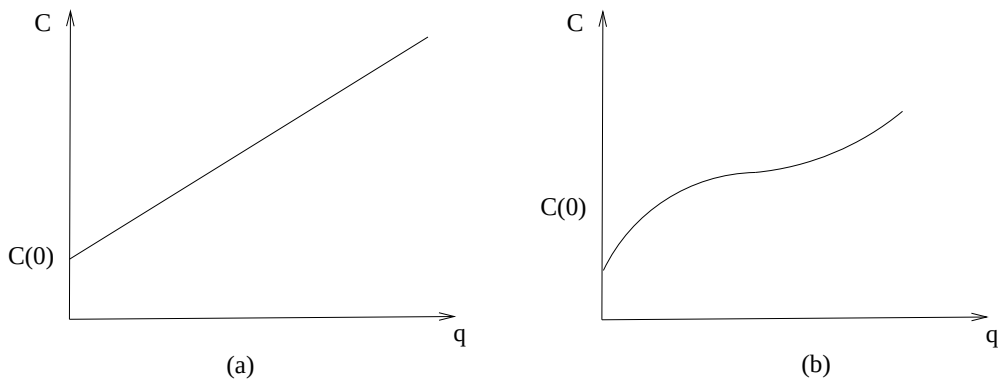
Cost function

- The cost increasing rapidly at the beginning and then more slowly. Why?



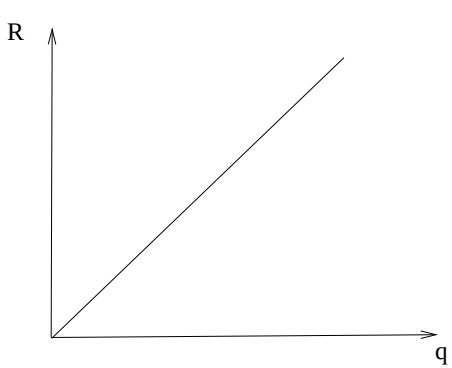
Cost function

- The cost increasing rapidly at the beginning and then more slowly. Why?
- Producing larger quantities of good is usually more efficient than producing smaller quantities.

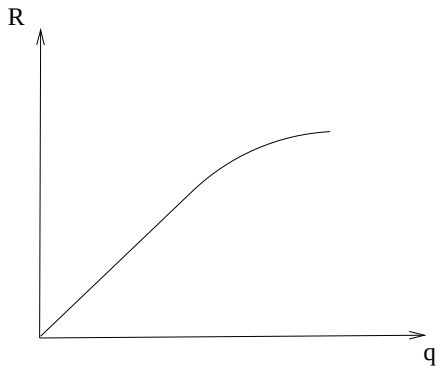


Revenue function

- Revenue function is $R = pq$.



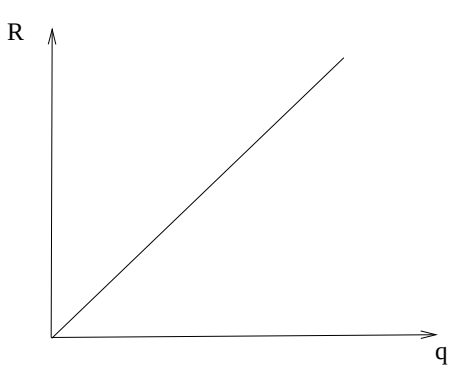
(a)



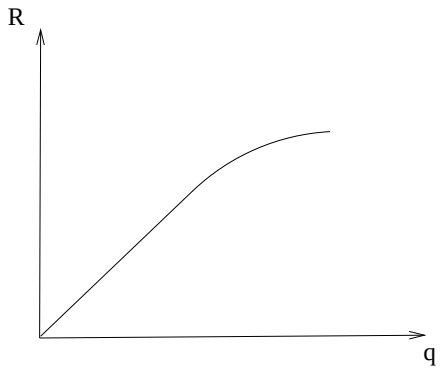
(b)

Revenue function

- Revenue function is $R = pq$.
- If the price is some constant, then the graph of R is a line through the origin with the slope is the price.



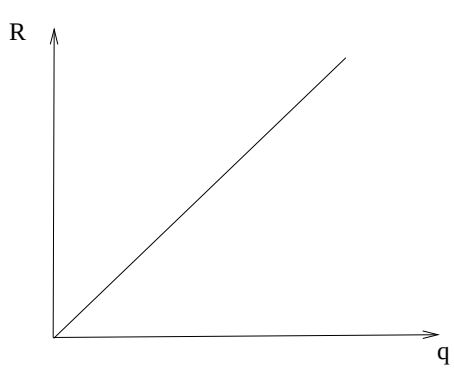
(a)



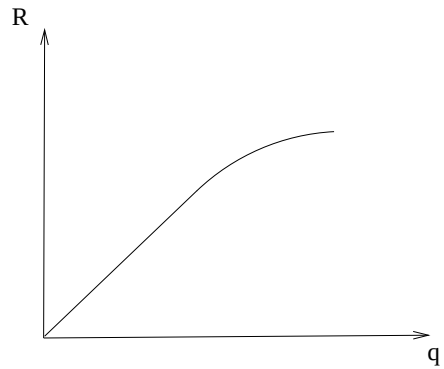
(b)

Revenue function

- Revenue function is $R = pq$.
- If the price is some constant, then the graph of R is a line through the origin with the slope is the price.
- In practice, the revenue function looks like the the Figure (b).



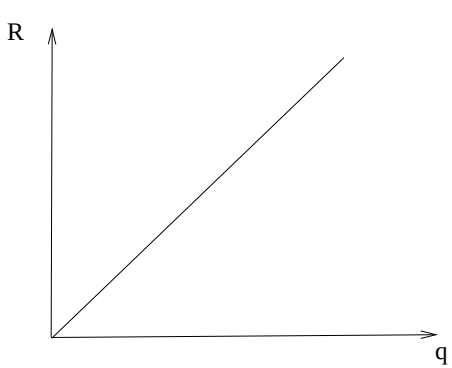
(a)



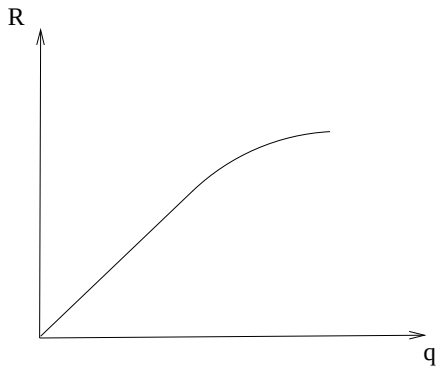
(b)

Revenue function

- Revenue function is $R = pq$.
- If the price is some constant, then the graph of R is a line through the origin with the slope is the price.
- In practice, the revenue function looks like the the Figure (b).
- For large values of q the market may become glutted, causing the price drop.



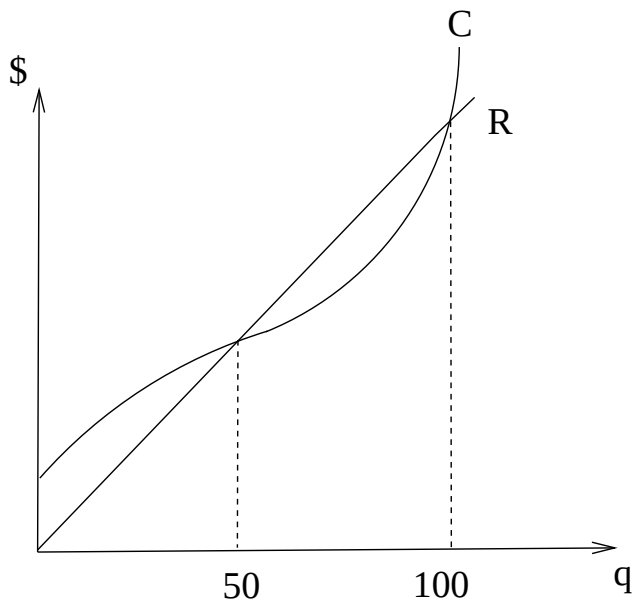
(a)



(b)

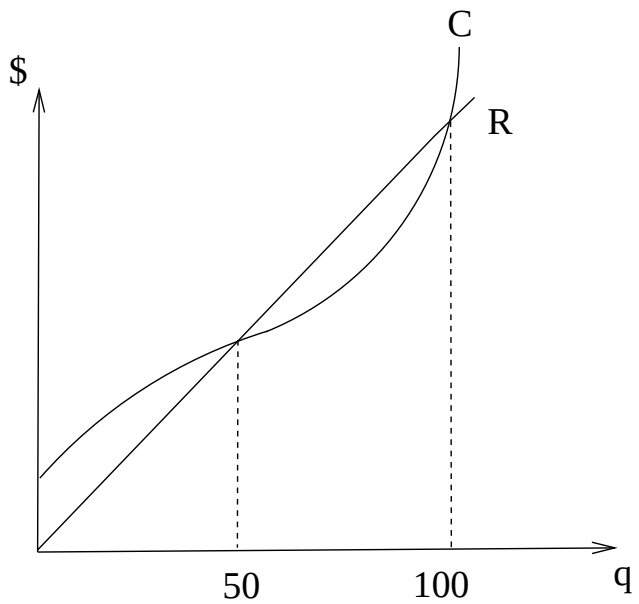
Example

- For what product quantities does the firm make profit?



Example

- For what product quantities does the firm make profit?
- $50 < x < 100$



Marginal Analysis

Many economic decisions are based on an analysis of the costs and revenues "at the margin".

- You are running an airline and decide whether to offer an additional flight.

Marginal Analysis

Many economic decisions are based on an analysis of the costs and revenues "at the margin".

- You are running an airline and decide whether to offer an additional flight.
- If the flight will make money for the company, it should be added.

Marginal Analysis

Many economic decisions are based on an analysis of the costs and revenues "at the margin".

- You are running an airline and decide whether to offer an additional flight.
- If the flight will make money for the company, it should be added.
- We need to consider the cost and revenue involved.

Marginal Analysis

Many economic decisions are based on an analysis of the costs and revenues "at the margin".

- You are running an airline and decide whether to offer an additional flight.
- If the flight will make money for the company, it should be added.
- We need to consider the cost and revenue involved.
- The crucial question is whether the **additional cost** incurred are greater or smaller than the **additional revenue**.

Marginal Cost and Revenue

Definition

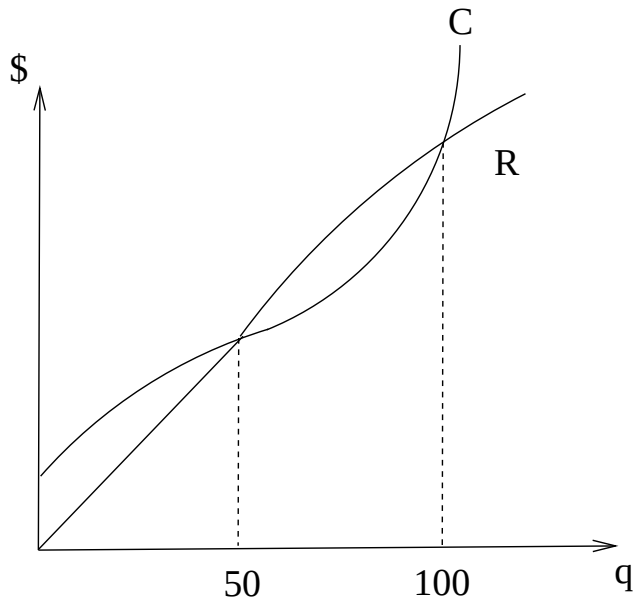
Marginal cost $= MC = C'(q) \approx C(q+1) - C(q)$

Definition

Marginal revenue $= MR = R'(q) \approx R(q+1) - R(q)$

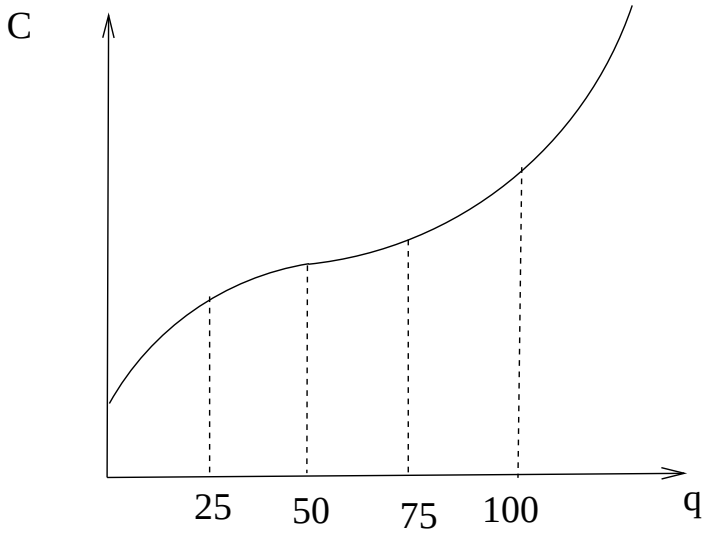
Example

Should the company add the 101^{th} flight?



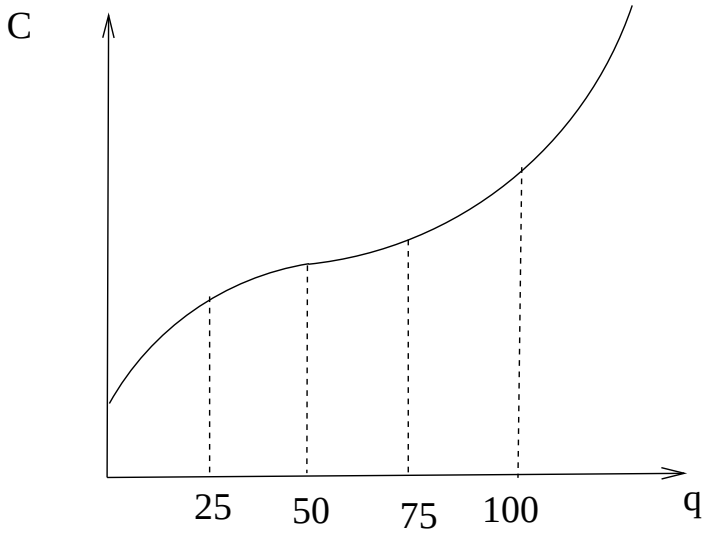
Example

- Does it cost more to produce the 25^{th} item or the 30^{th} item?



Example

- Does it cost more to produce the 25^{th} item or the 30^{th} item?
- Does it cost more to produce the 75^{th} item or the 100^{th} item?



Example

- Does it cost more to produce the 25^{th} item or the 30^{th} item?
- Does it cost more to produce the 75^{th} item or the 100^{th} item?
- At approximately what production level the marginal cost smallest?