Marginal Cost and Revenue

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

![Graphs of Cost Functions](image)
The cost increasing rapidly at the beginning and then more slowly. Why?
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Producing larger quantities of good is usually more efficient than producing smaller quantities.
Revenue function

- Revenue function is $R = pq$. 

![Graphs of Revenue Function](image)

(a) and (b) show the graph of the revenue function. The graph in (a) is a straight line through the origin with slope equal to the price. In (b), for large values of $q$, the market may become glutted, causing the price to drop.
Revenue function

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Example

- For what product quantities does the firm make profit?
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- $50 < x < 100$
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- 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 101th flight?
Example

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

![Diagram showing marginal cost curve with points at 25, 50, 75, and 100 units]
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?