Intermediate Microeconomics

Chapter 7

The Firm and Its Goals

Decisions of firms

- What should it produce?
- How should it produce its output?
- How much should it sell and for what price?
- How should it promote the product?

⇒ the answers to these questions determine the behavior of the firm as a supplier in the goods market and demander in the inputs market

Economic profit

- *Total revenue* = sum of payments that the firm receives from the sale of its output
- *Total economic cost* = firm's total expenditure on the inputs used to produce the output, where expenditures are measured in terms of opportunity cost ⇒ different from ”accounting” costs, which usually underestimate economic costs
- Economic profit = Total revenue – Total economic cost

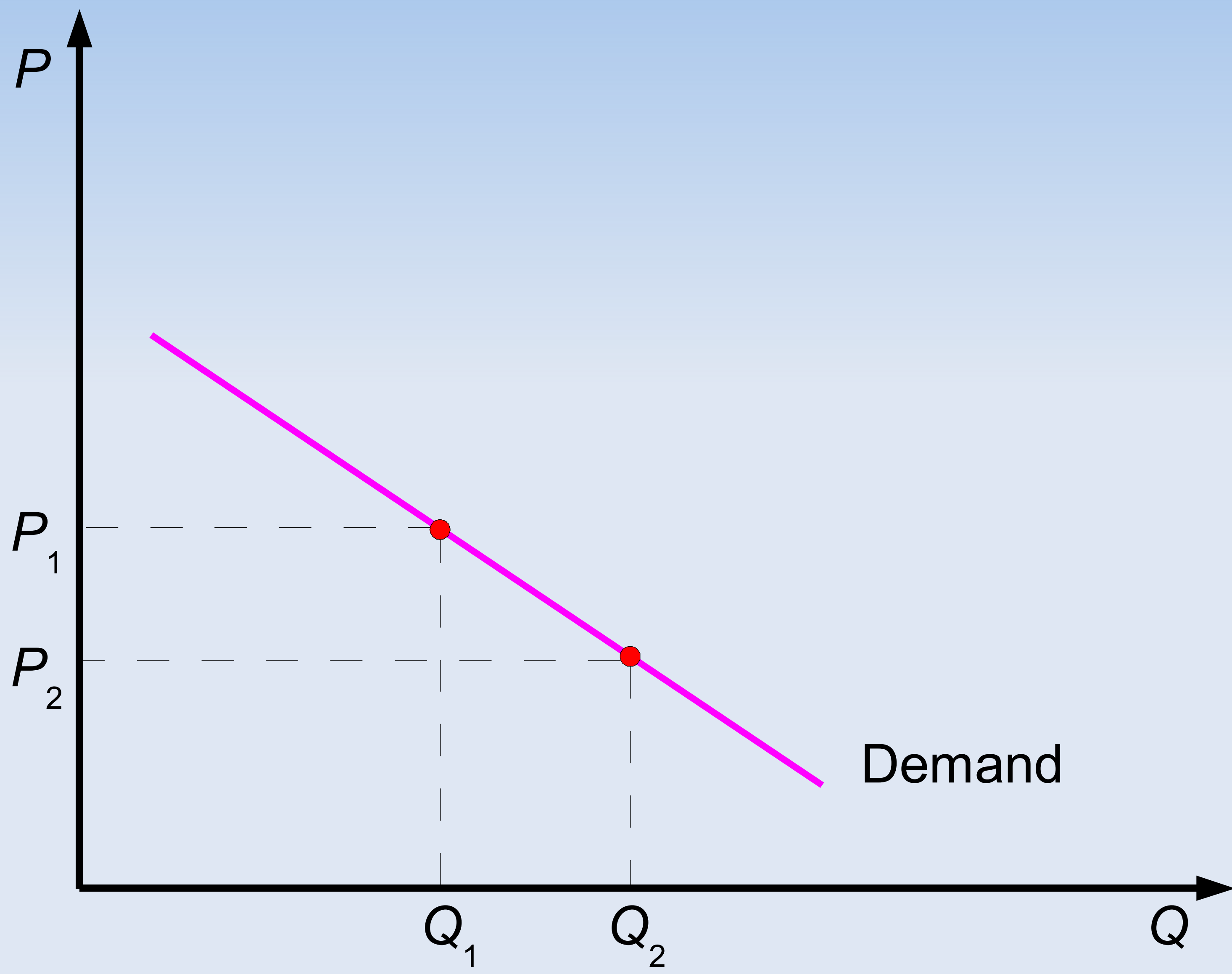
User cost of capital

- Depreciation = fall in the value of an asset over a defined period of time
- User cost of capital = opportunity cost that an owner incurs as a consequence of owning and using an asset (e.g., depreciation + forgone interest)

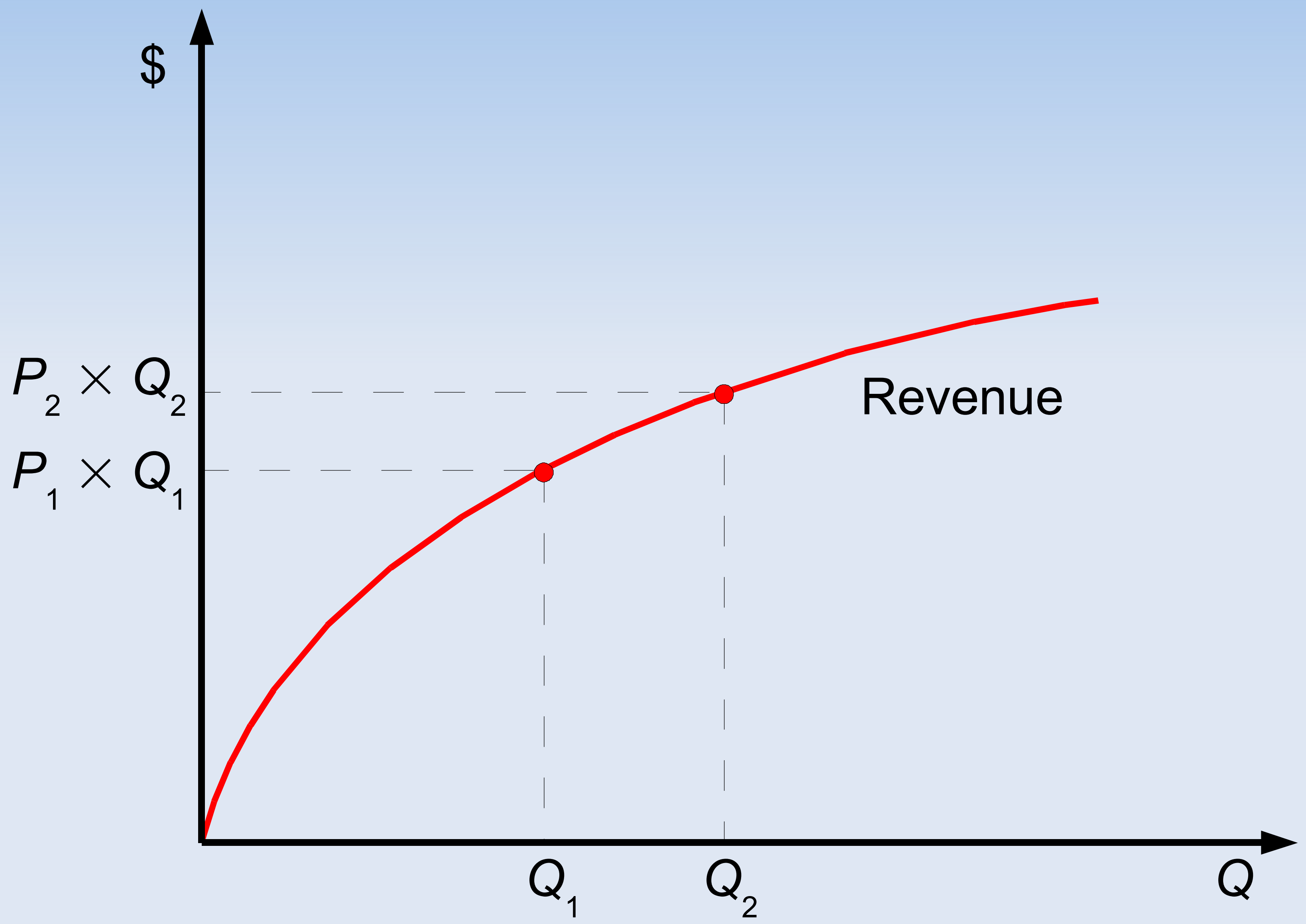
Total revenue curve

- Firm-specific demand curve = schedule showing the quantity of a single firm's output demanded for any price charged by that particular firm
- Total revenue curve = schedule showing the relationship between a firm's output level and the resulting amount of revenue
- The firm-specific demand curve includes all the information needed to derive the total revenue curve

Firm-specific demand curve



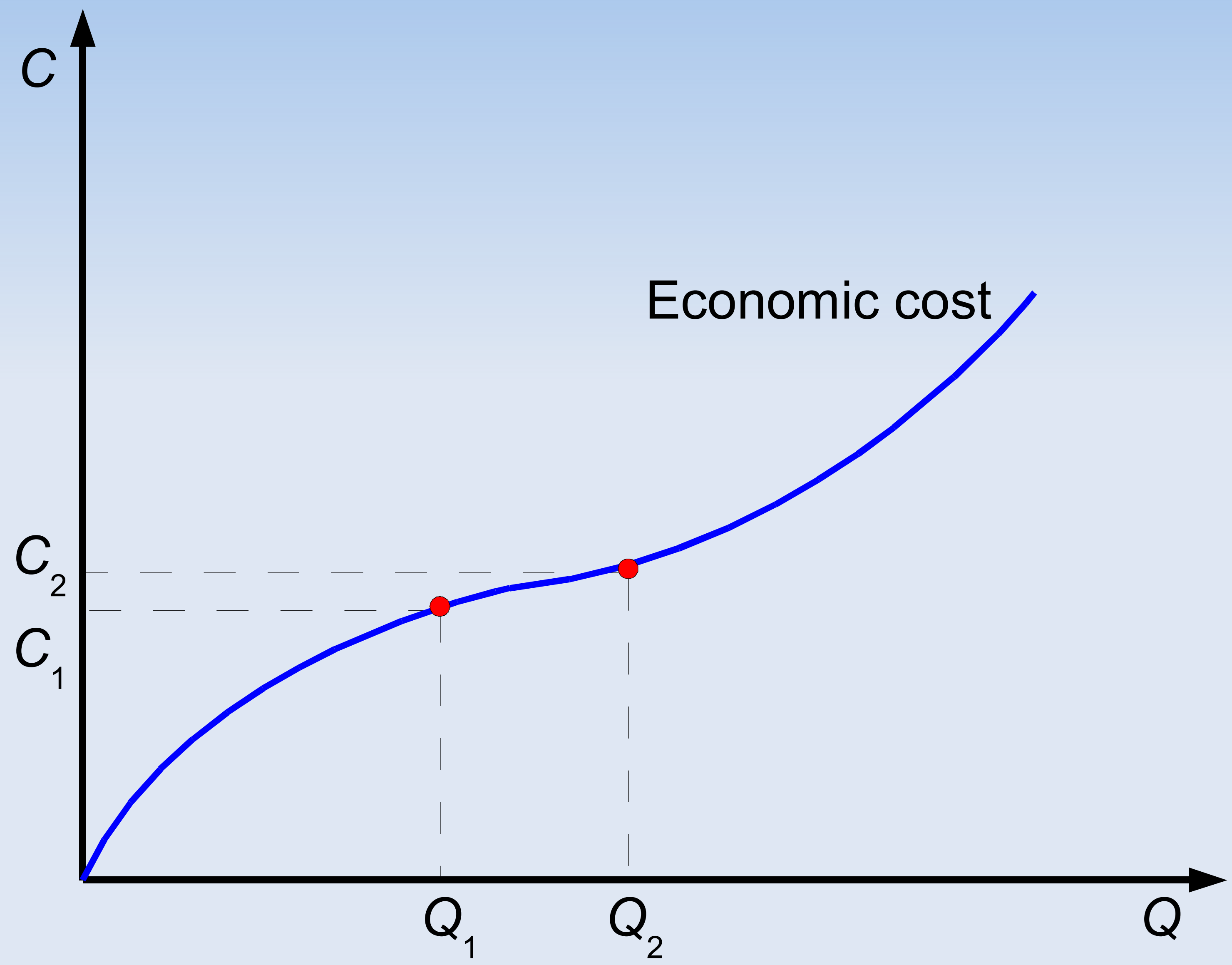
Total revenue curve



Total economic cost curve

- Total economic cost curve = schedule showing the relationship between a firm's output level and the resulting level of economic cost
- Factors kept constant:
  - factor prices
  - technological possibilities
  - product characteristics

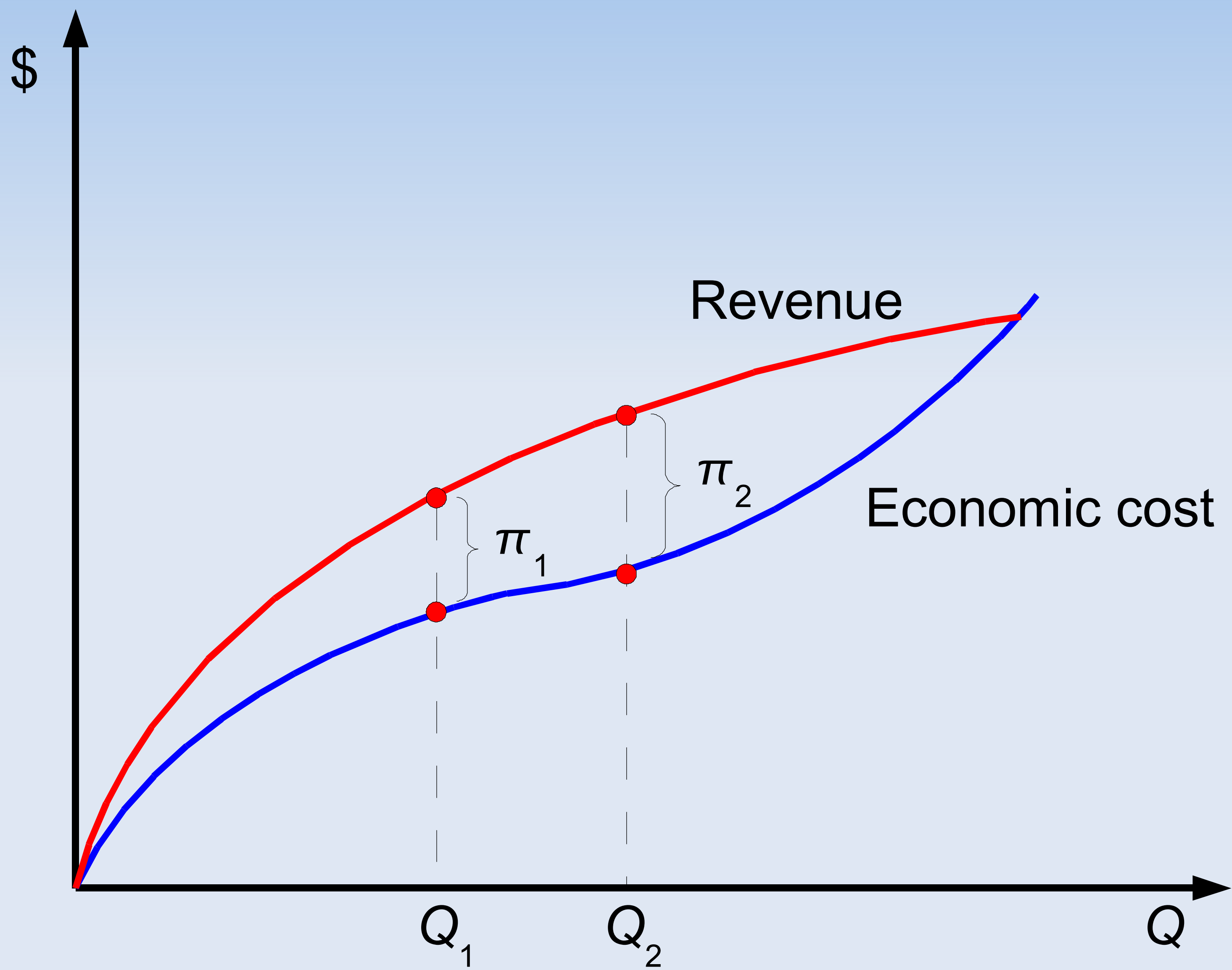
Total economic cost curve



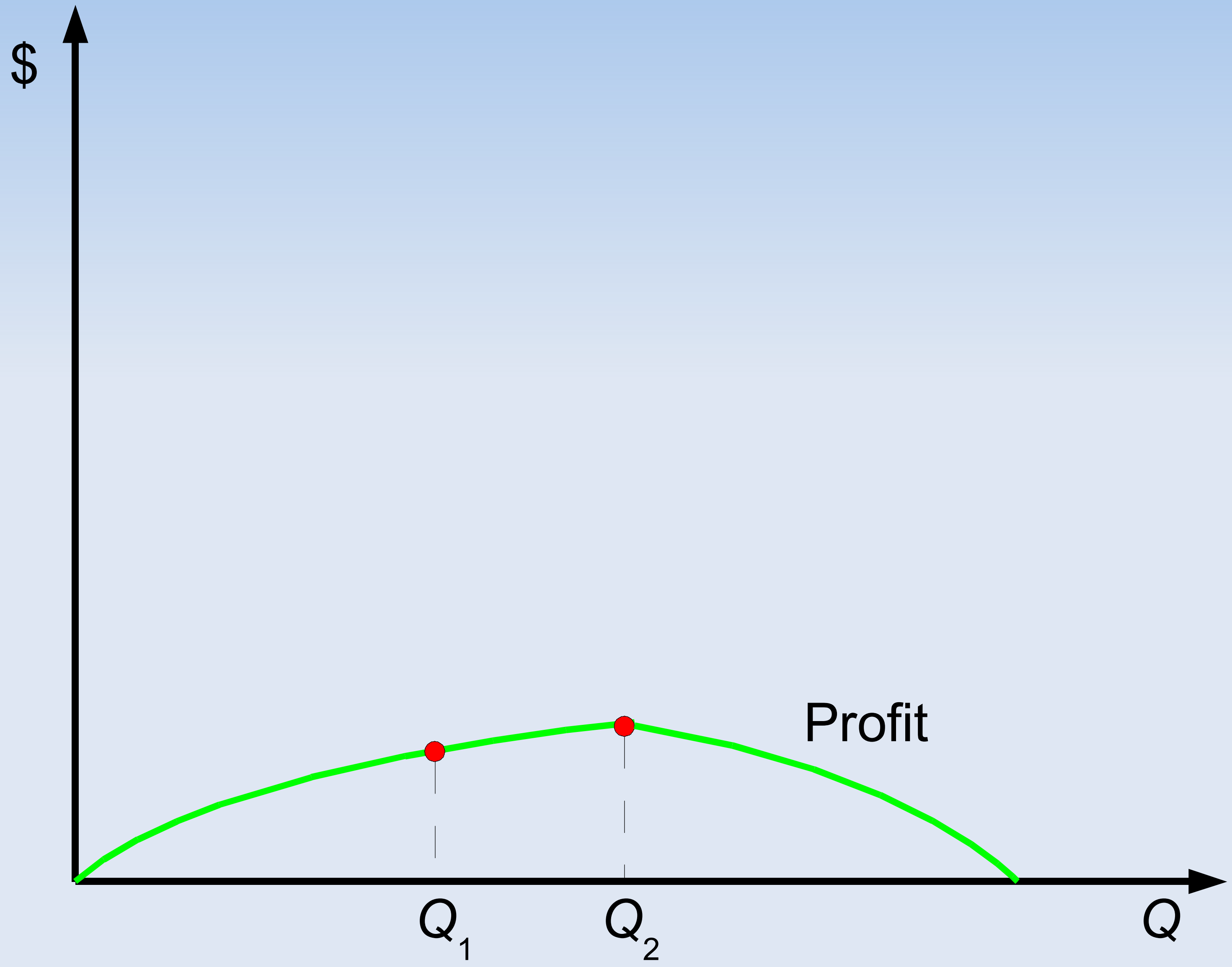
Maximizing profit

- Profit function = algebraic of graphical relationship between a firm's output level and its resulting profit level
- Factors kept constant:
  - factor prices
  - technological possibilities
  - product characteristics

Determination of profit



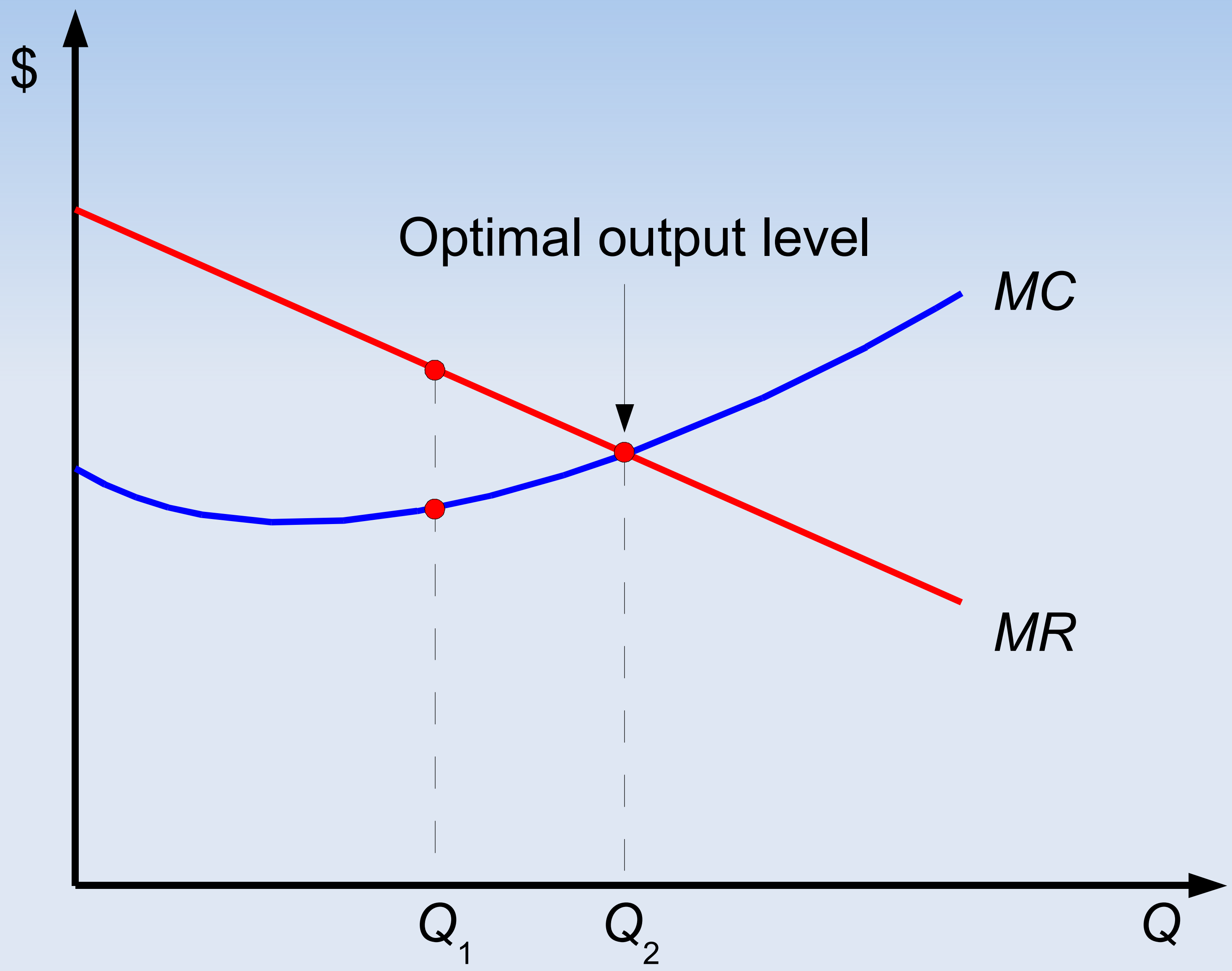
Profit function



Optimal output level

- *Marginal revenue* (*MR*) = change in revenue due to the sale of one more unit of output
- *Marginal cost* (*MC*) = change in total cost due to the production of one more unit of output
- *Marginal output rule*:
  - if MR > MC, producing one more unit will increase profit ⇒ increase output
  - if MR < MC, producing one more unit will decrease profit ⇒ decrease output
  - if MR = MC, no incentive to change output ⇒ optimal level of output

Marginal revenue and cost



Marginal output rule

- If a firm does not shut down, then it should produce output at a level where marginal revenue is equal to marginal cost
- Although the shape of the MR and MC functions depend on the particulars of the market in which the firm operates, the rule that the firm should produce at a point where MR is equal to MC is valid for *any profit-maximizing firm*

Shut-down rule

- *Average revenue* (*AR*) = firm's total revenue divided by the number of units produced
- *Average economic cost* (*AEC*) = firm's total economic cost divided by the number of units produced
- Shut-down rule: a firm should shut down if economic profit is negative, or equivalently, if AEC > AR, for *every level of output*
- Note that a firm with zero economic profit will choose to stay in business (why? because it is *economic* and not *accounting* profit)

Do firms really maximize profits?

- We treat firms as a black box: inputs go in, technology is applied, output comes out according to profit-maximizing rule
- In reality, firms operate in a more complex way
- The most important aspect is the separation of ownership (shareholders) from control (managers) – they might not have the same objectives $\Rightarrow$ principal-agent problem