# 제 8 장

# 시장의 여러 형태

# Managing in Competitive, Monopolistic, and Monopolistically Competitive Markets

# 완전경쟁의 조건
## Perfect Competition Environment

- Many buyers and sellers.
- Homogeneous (identical) product.
- Perfect information on both sides of market.
- No transaction costs.
- Free entry and exit.
- Ideal Market Type to evaluate other types of markets

# 완전경쟁의 이론적 함의
## Key Implications

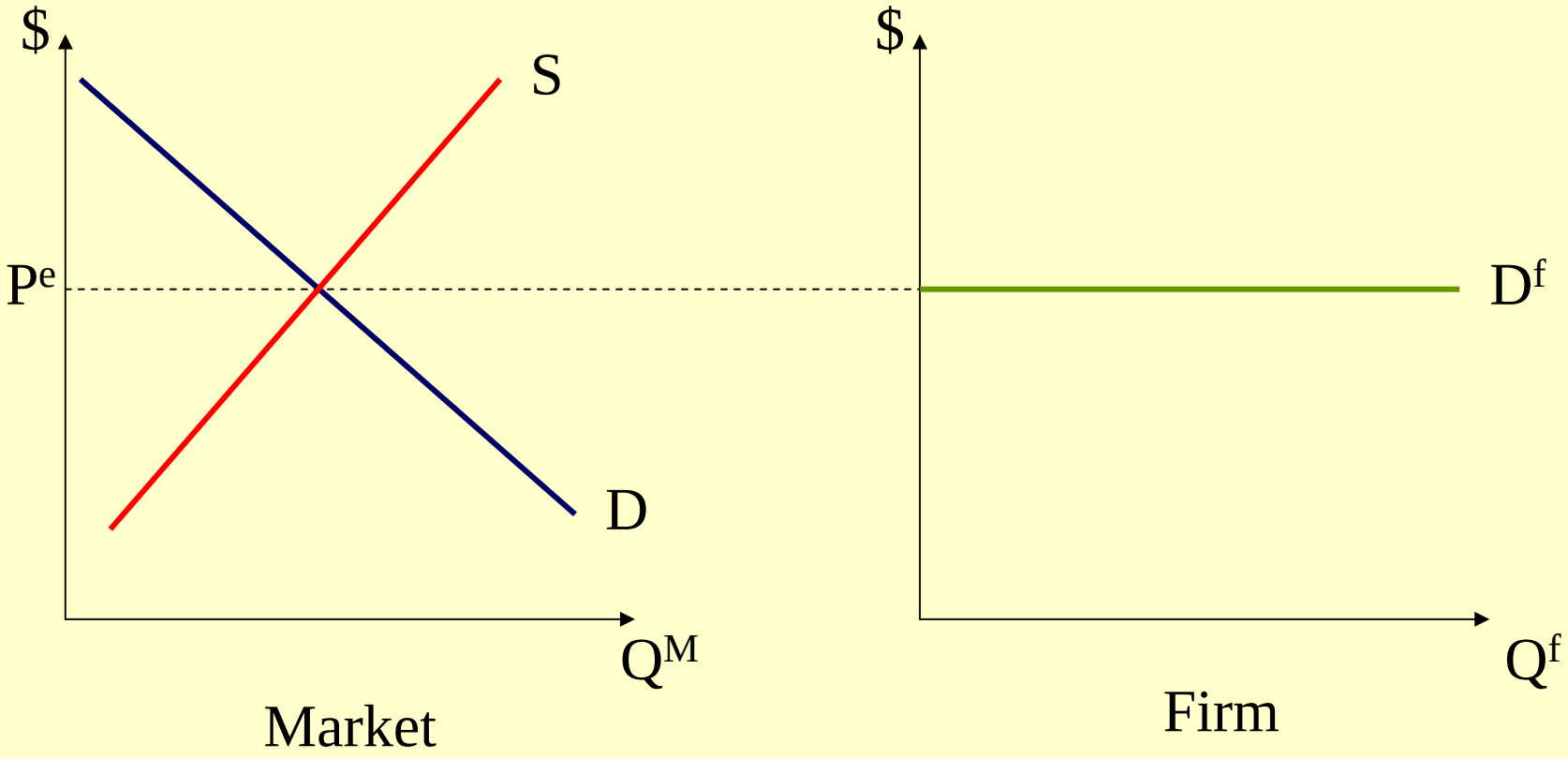
- Firms are “price takers” (P = MR). 가격수용자
- In the short-run, firms may earn profits or losses.
- Long-run profits are zero (신규기업진입 용이).

# Unrealistic? Why Learn?

- Many small businesses are “price-takers,” and decision rules for such firms are similar to those of perfectly competitive firms.
- It is a useful benchmark.
- Explains why governments oppose monopolies.
- Illuminates the “danger” to managers of competitive environments.
  - Importance of product differentiation.
  - Sustainable advantage.

# Managing a Perfectly Competitive Firm (or Price-Taking Business)

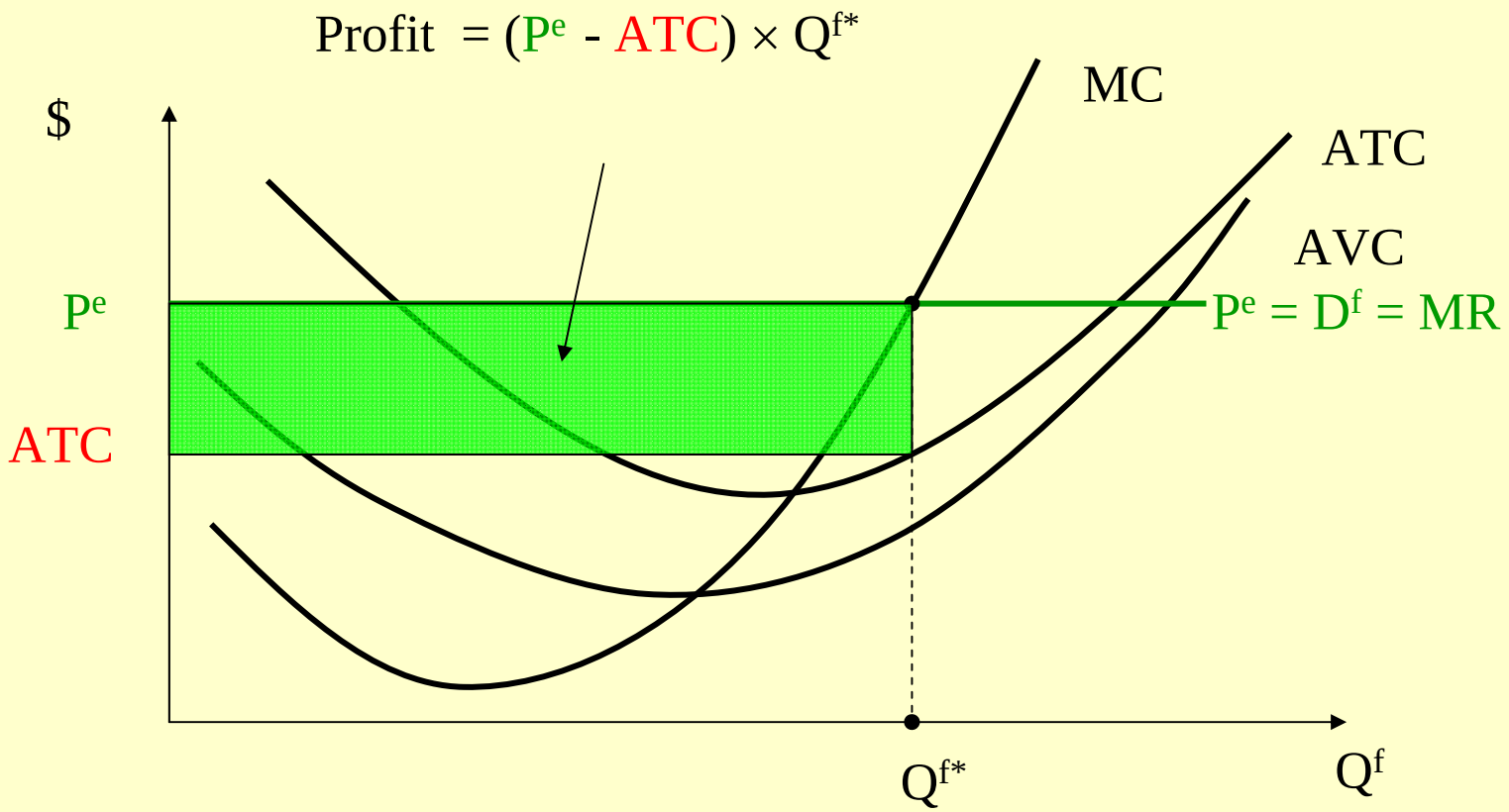
# Setting Price



# 이윤극대화를 위한 생산량의 결정
## Profit-Maximizing Output Decision

- MR = MC.
- Since, MR = P,
- Set P = MC to maximize profits.

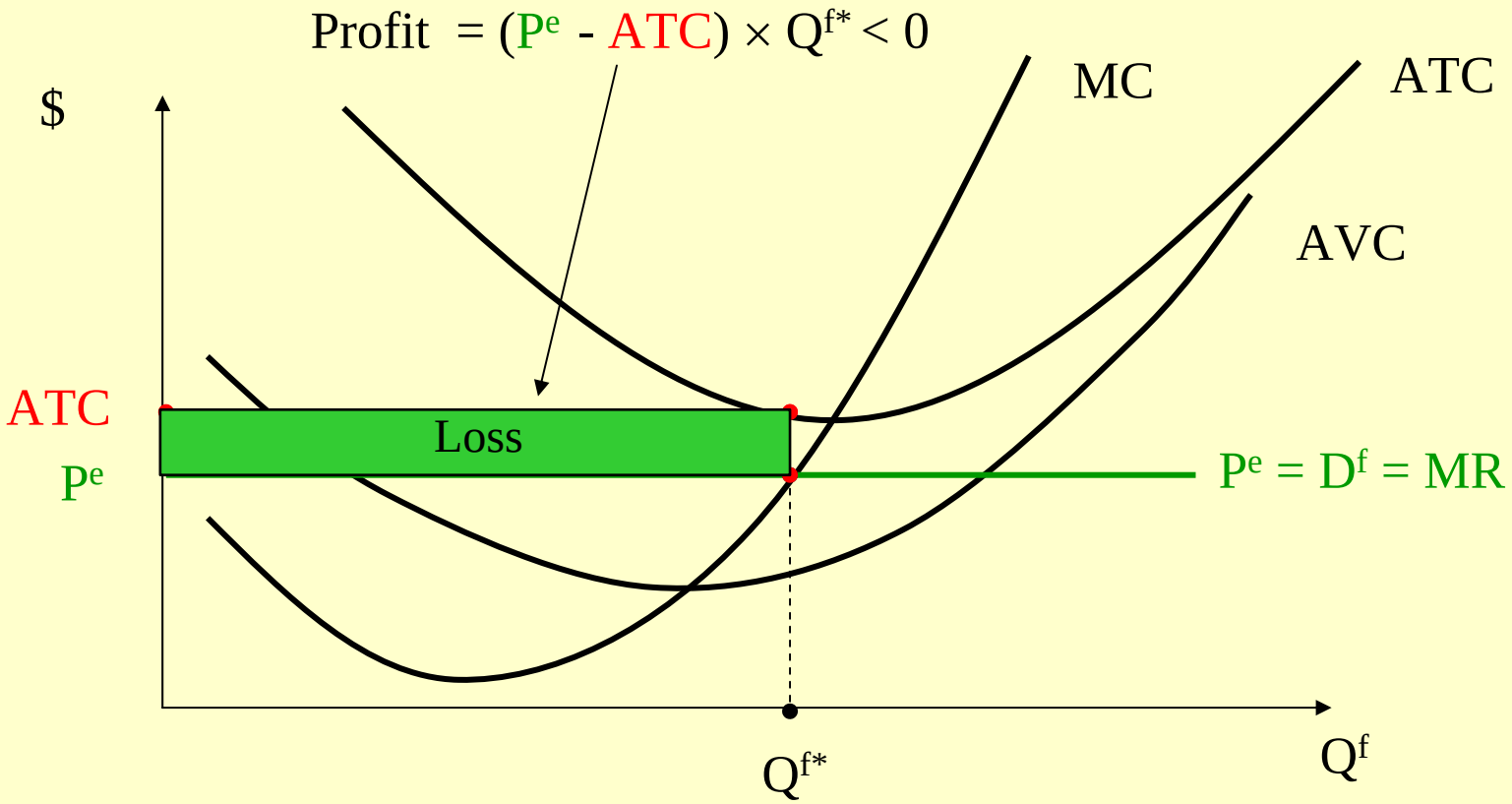
# Graphically: Representative Firm's Output Decision



# A Numerical Example

- Given
  - P=$10
  - $C(Q) = 5 + Q^2$
- Optimal Price?
  - P=$10
- Optimal Output?
  - MR = P = $10 and MC = 2Q
  - 10 = 2Q
  - Q = 5 units
- Maximum Profits?
  - PQ - C(Q) = (10)(5) - (5 + 25) = $20

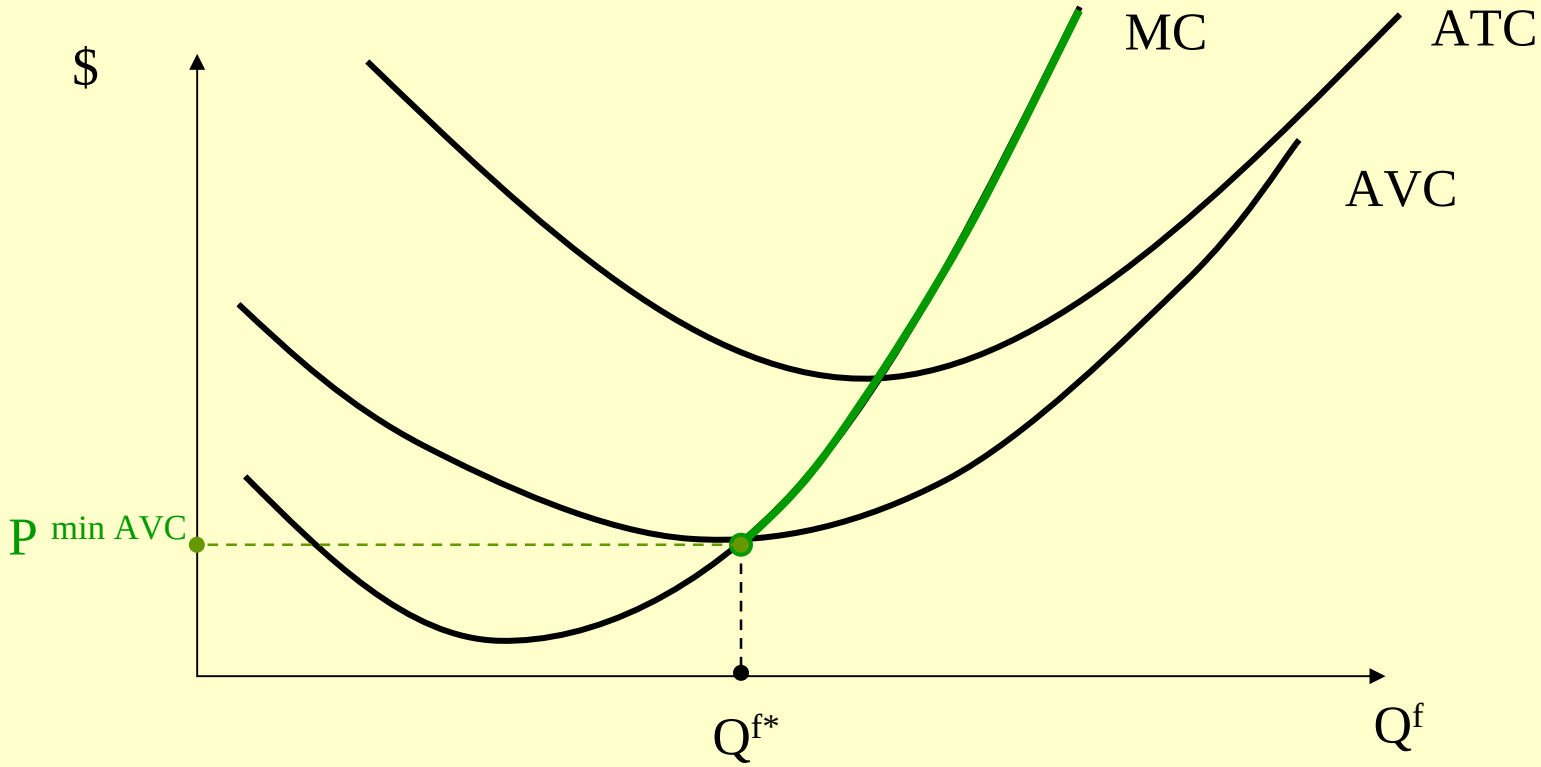
# Should this Firm Sustain Short Run Losses or Shut Down?



# 생산중단 결정
## Shutdown Decision Rule

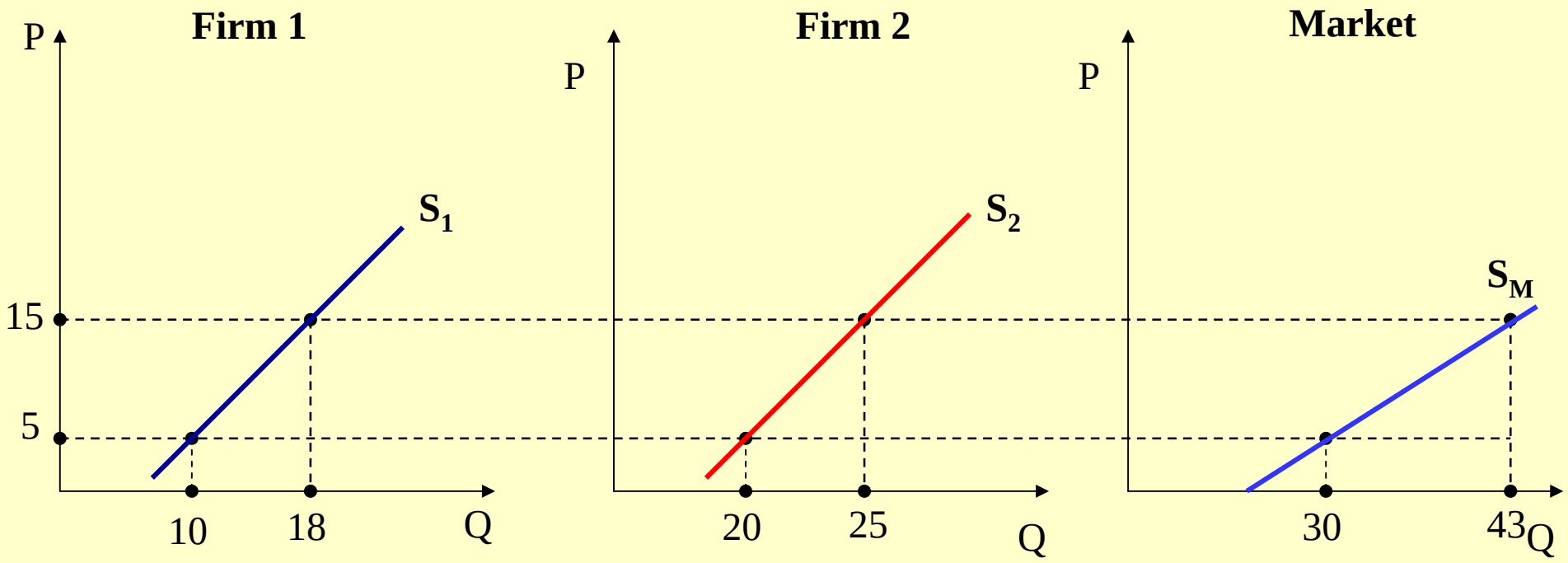
- A profit-maximizing firm should continue to operate (sustain short-run losses) if its *operating loss* is less than its *fixed costs*.
  - Operating results in a smaller loss than ceasing operations.
- Decision rule:
  - A firm should shutdown when $P < \text{min AVC}$.
  - Continue operating as long as $P \geq \text{min AVC}$.

# Firm's Short-Run Supply Curve: MC Above Min AVC



# 단기시장공급곡선
## Short-Run Market Supply Curve

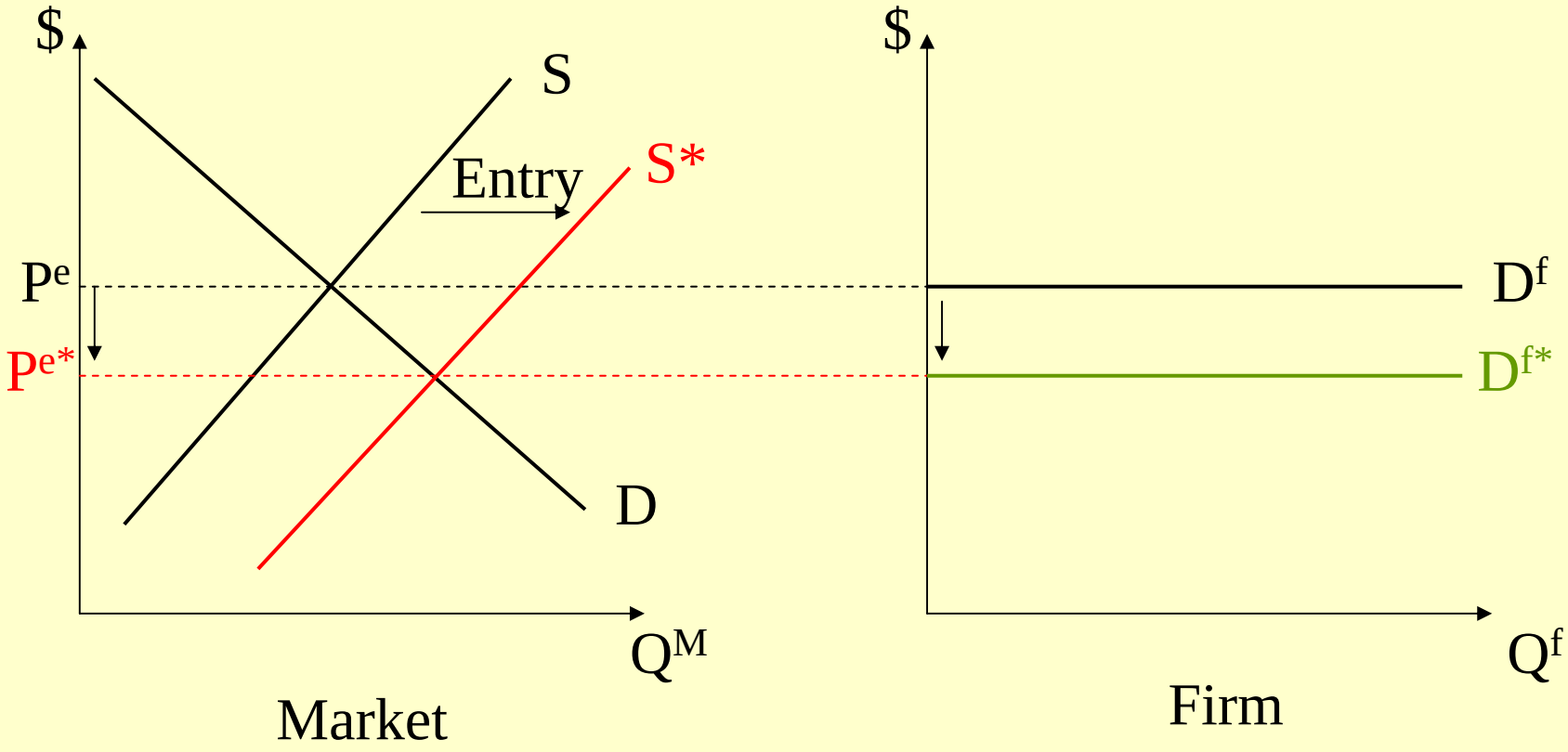
- The market supply curve is the summation of each individual firm's supply at each price.



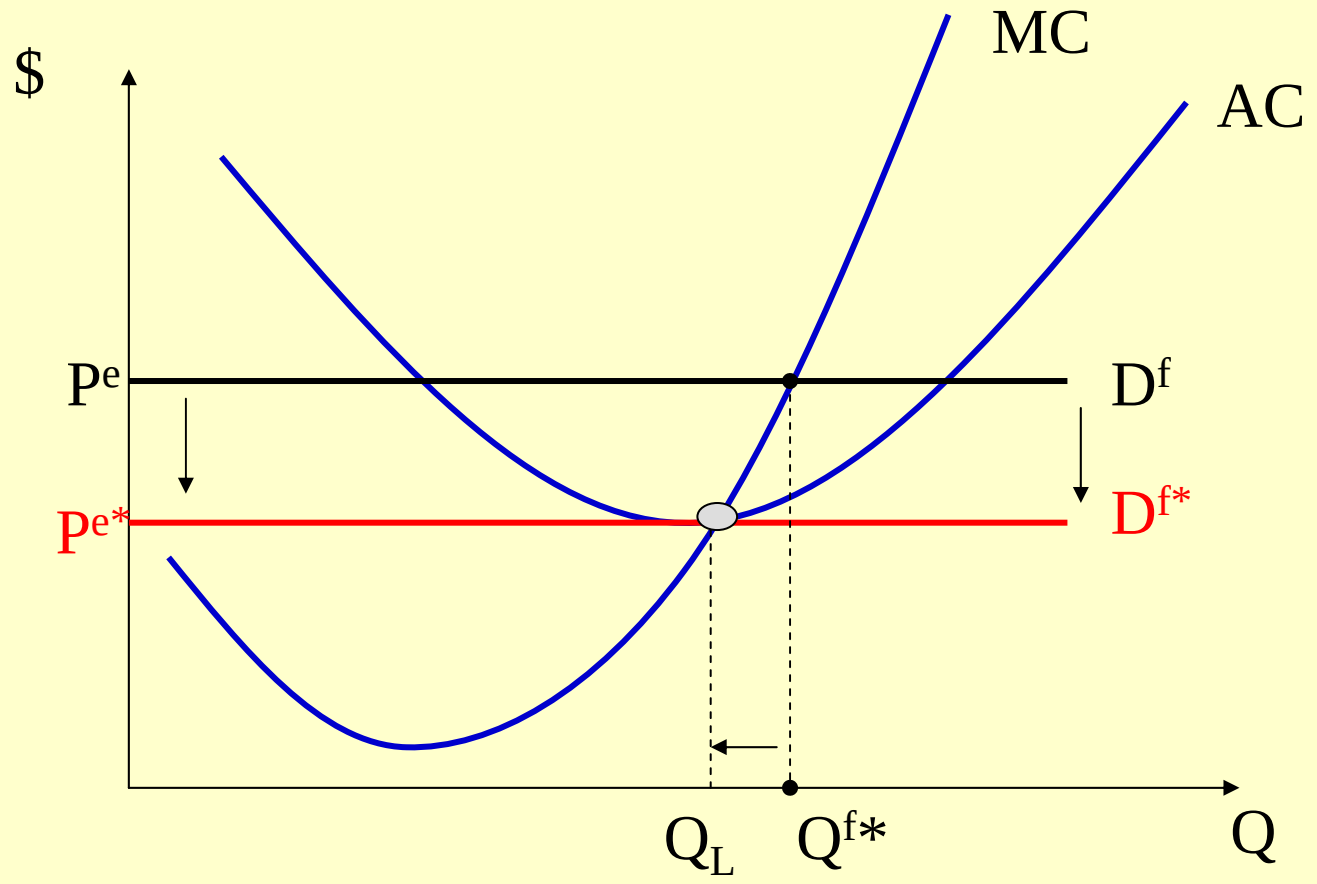
# 장기조정
## Long Run Adjustments?

- If firms are price takers but there are barriers to entry, profits will persist.
- If the industry is perfectly competitive, firms are not only price takers but there is free entry.
  - Other “greedy capitalists” enter the market.

# Effect of Entry on Price?



# Effect of Entry on the Firm's Output and Profits?



## Summary of Logic

- Short run profits leads to entry.
- Entry increases market supply, drives down the market price, increases the market quantity.
- Demand for individual firm’s product shifts down.
- Firm reduces output to maximize profit.
- Long run profits are zero.

# 장기경쟁균형
## Features of Long Run Competitive Equilibrium

- P = MC
  - Socially efficient output.
- P = minimum AC
  - Efficient plant size.
  - Zero profits
    - Firms are earning just enough to offset their opportunity cost.

# 독점시장
## Monopoly Environment

- Single firm serves the “relevant market.”
- Most monopolies are “local” monopolies.
- The demand for the firm’s product is the market demand curve.
- Firm has control over price.
  - But the price charged affects the quantity demanded of the monopolist’s product.

# “Natural” Sources of Monopoly Power 자연독점의 원천

- Economies of scale
- Economies of scope
- Cost complementarities
- Control over scarce inputs

# "Created" Sources of Monopoly Power 독점화의 인위적 요인

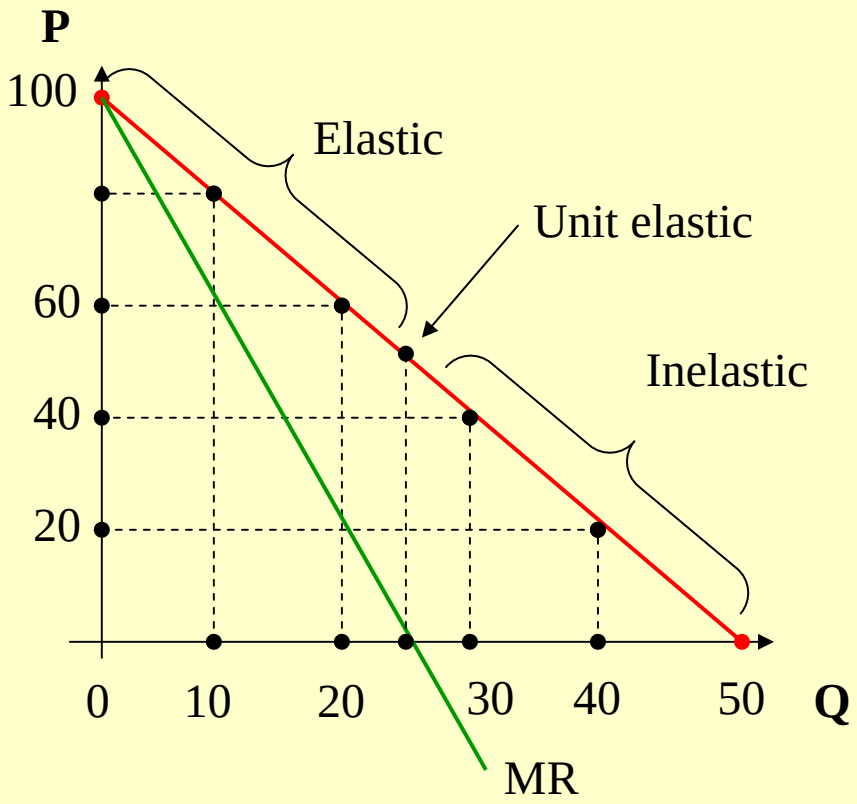
- Patents and other legal barriers (like licenses, franchise)
- Tying contracts
- Government-enforced barriers
- Exclusive contracts
- Collusion

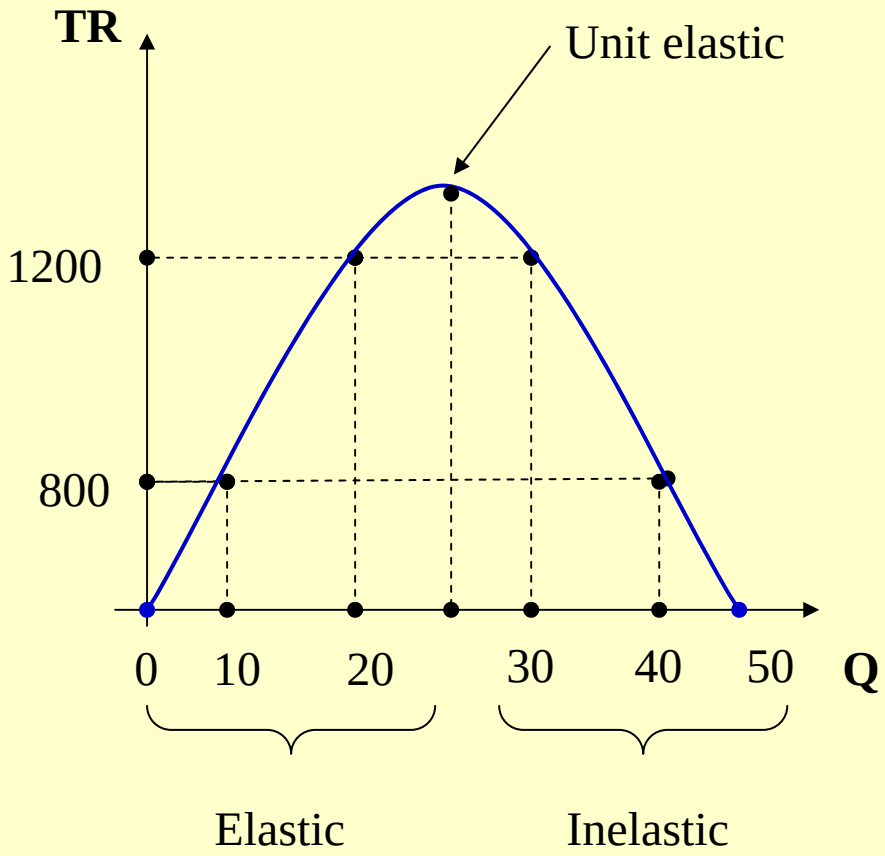
# 독점력의 유지
## Managing a Monopoly

- Market power permits you to price above MC
- Is the sky the limit?
- No.  How much you sell depends on the price you set!

# 독점기업의 한계수익

## A Monopolist's Marginal Revenue



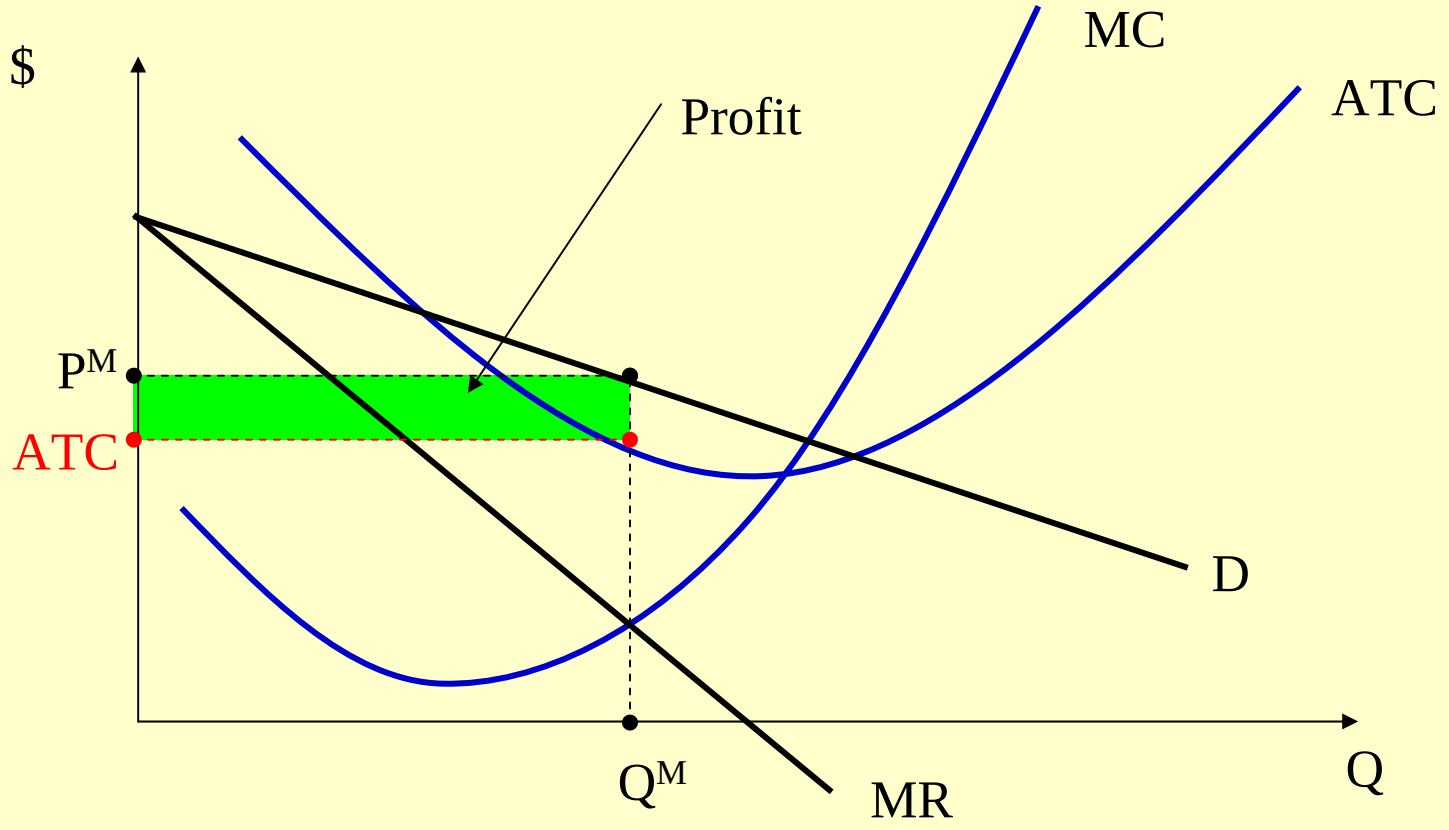



# 독점의 이윤극대화

## Monopoly Profit Maximization

Produce where MR = MC.

Charge the price on the demand curve that corresponds to that quantity.



# 유용한 공식들

**Useful Formulae**

- What's the MR if a firm faces a linear demand curve for its product?

$$P = a + bQ$$

$$MR = a + 2bQ, where\ b < 0.$$

- Alternatively, we get *Amarozo-Robinson Formula*

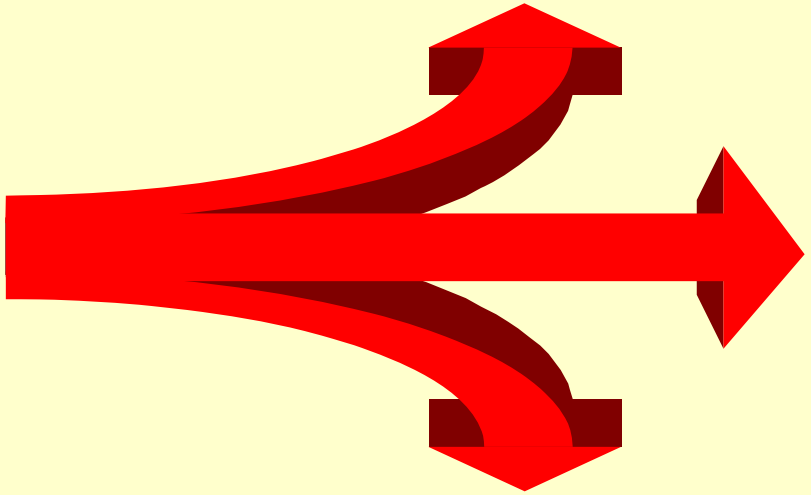
$$MR = P\left[\frac{1+E}{E}\right]$$

# A Numerical Example

- Given estimates of
  - P = 10 - Q
  - C(Q) = 6 + 2Q
- Optimal output?
  - MR = 10 - 2Q
  - MC = 2
  - 10 - 2Q = 2
  - Q = 4 units
- Optimal price?
  - P = 10 - (4) = $6
- Maximum profits?
  - PQ - C(Q) = (6)(4) - (6 + 8) = $10

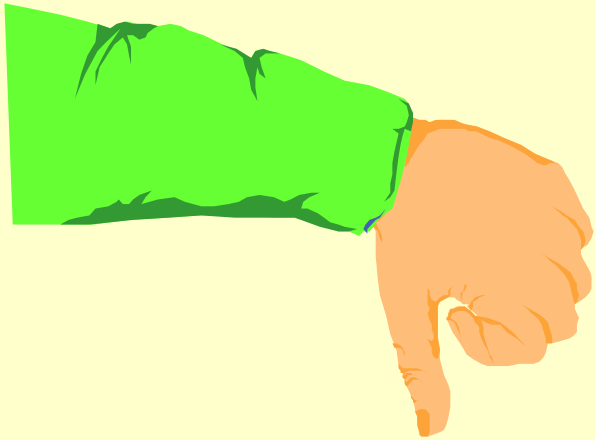
# 장기조정
## Long Run Adjustments?

- None, unless the source of monopoly power is eliminated.



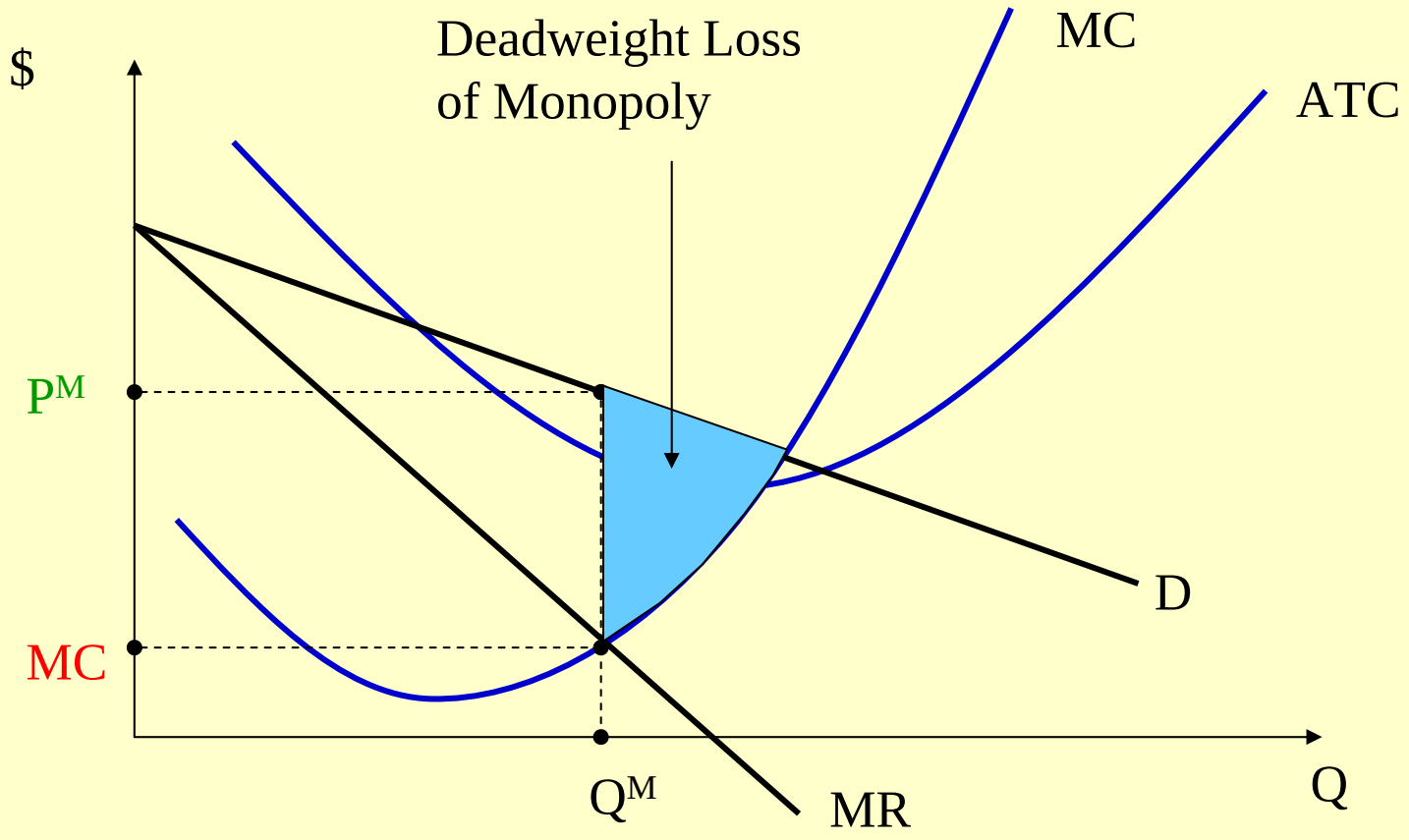
# 독점규제의 근거
## Why Government Dislikes Monopoly?

- P > MC
  - Too little output, at too high a price.
- Deadweight loss of monopoly (독점의 사회적 폐해).



# 독점의 사회적 손실

## Social Welfare (Deadweight) Loss of Monopoly



# 독점에 대한 논쟁거리들
## Arguments for Monopoly

- The beneficial effects of economies of scale, economies of scope, and cost complementarities on price and output may outweigh the negative effects of market power (Oliver Williamson).
- Encourages innovation through aggressive R&D (Joseph Schumpeter).

# Monopoly Multi-Plant Decisions

- Consider a monopoly that produces identical output at two production facilities (think of a firm that generates and distributes electricity from two facilities).
  - Let $C_1(Q_2)$ be the production cost at facility 1.
  - Let $C_2(Q_2)$ be the production cost at facility 2.
- Decision Rule: Produce output where

$$MR(Q) = MC_1(Q_1) \text{ and } MR(Q) = MC_2(Q_2)$$

  - Set price equal to $P(Q)$, where $Q = Q_1 + Q_2$.

# 독점적 경쟁

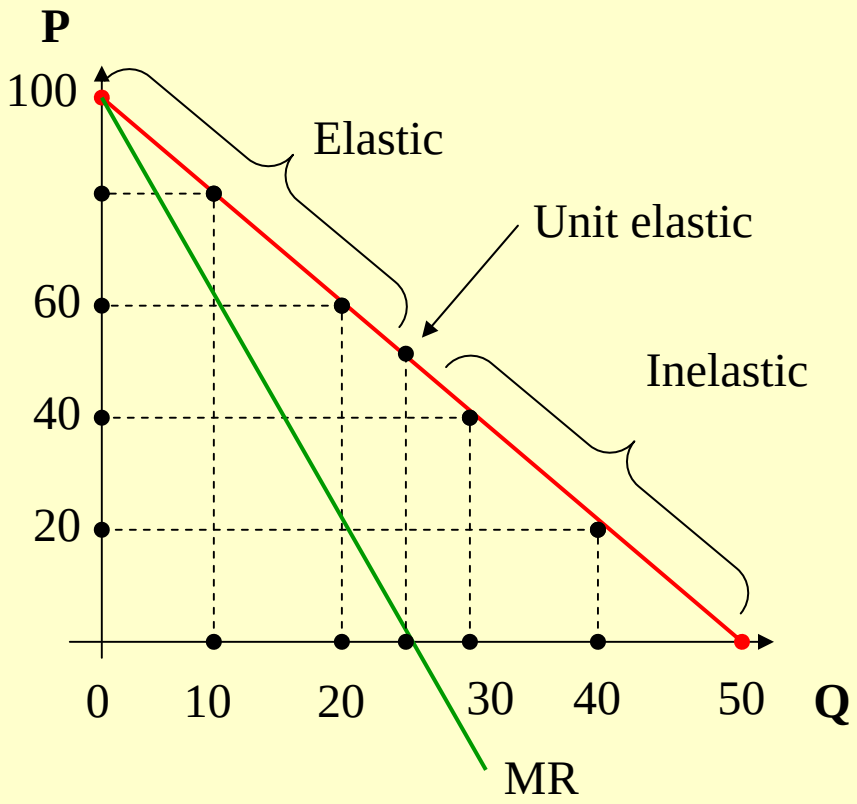
## Monopolistic Competition: Environment and Implications

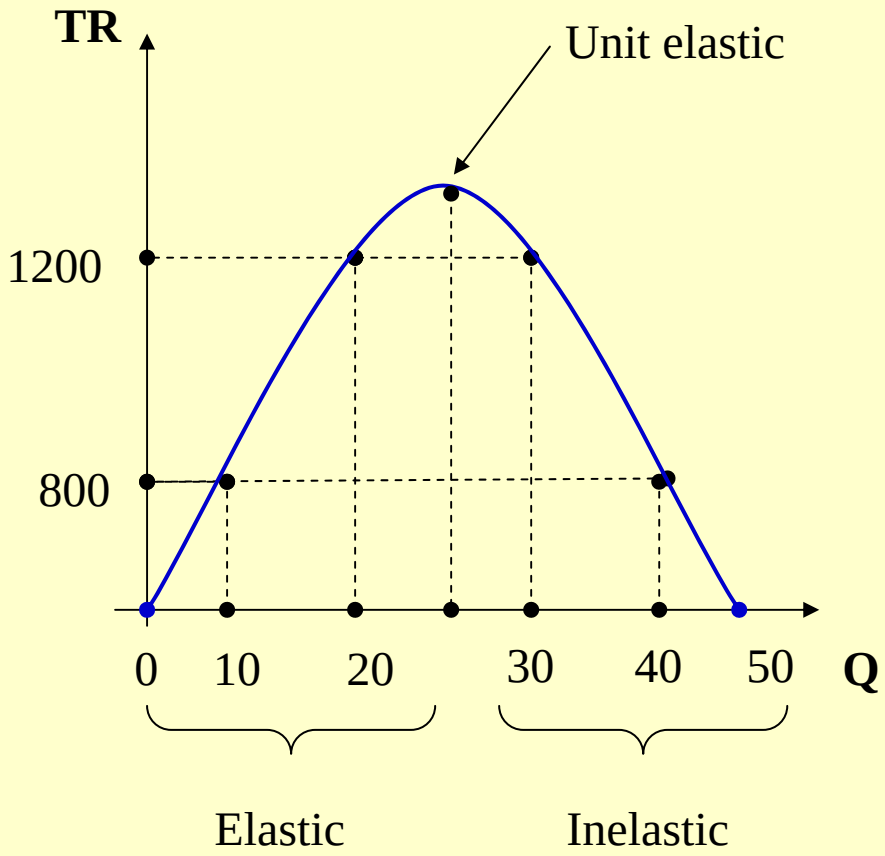
- Numerous buyers and sellers
- Differentiated products
  - **Implication:** Since products are differentiated, each firm faces a downward sloping demand curve.
    - Consumers view differentiated products as close substitutes: there exists *some* willingness to substitute.
- Free entry and exit
  - **Implication:** Firms will earn zero profits in the long run.

# Managing a Monopolistically Competitive Firm

- Like a monopoly, monopolistically competitive firms
  - have market power that permits pricing above marginal cost.
  - level of sales depends on the price it sets.
- But …
  - The presence of other brands in the market makes the demand for your brand more elastic than if you were a monopolist.
  - Free entry and exit impacts profitability.
- Therefore, monopolistically competitive firms have limited market power.

# Marginal Revenue Like a Monopolist



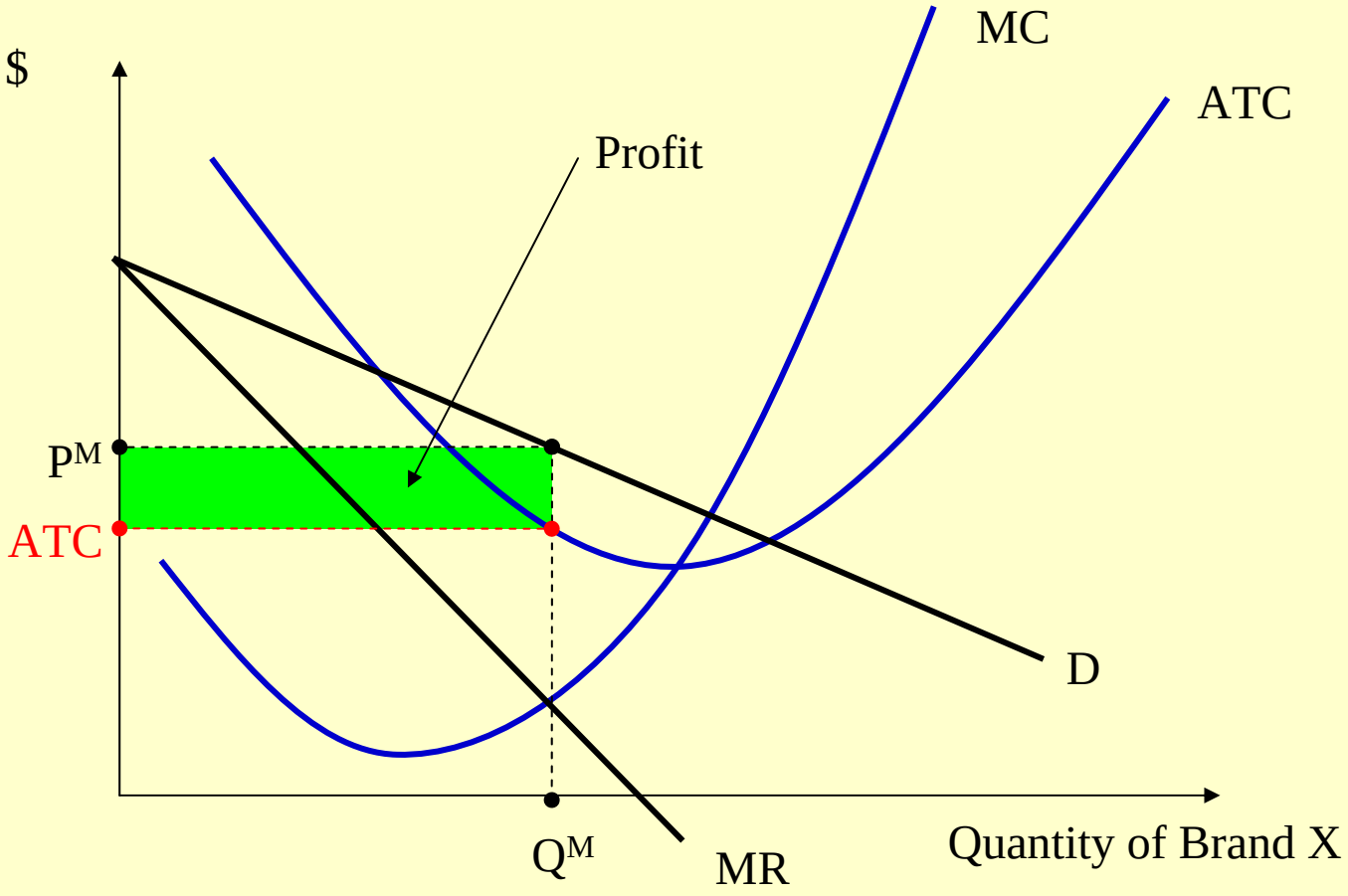



# Monopolistic Competition: Profit Maximization

- Maximize profits like a monopolist
  - Produce output where MR = MC.
  - Charge the price on the demand curve that corresponds to that quantity.

# 독점적 경쟁의 단기균형

## Short-Run Monopolistic Competition

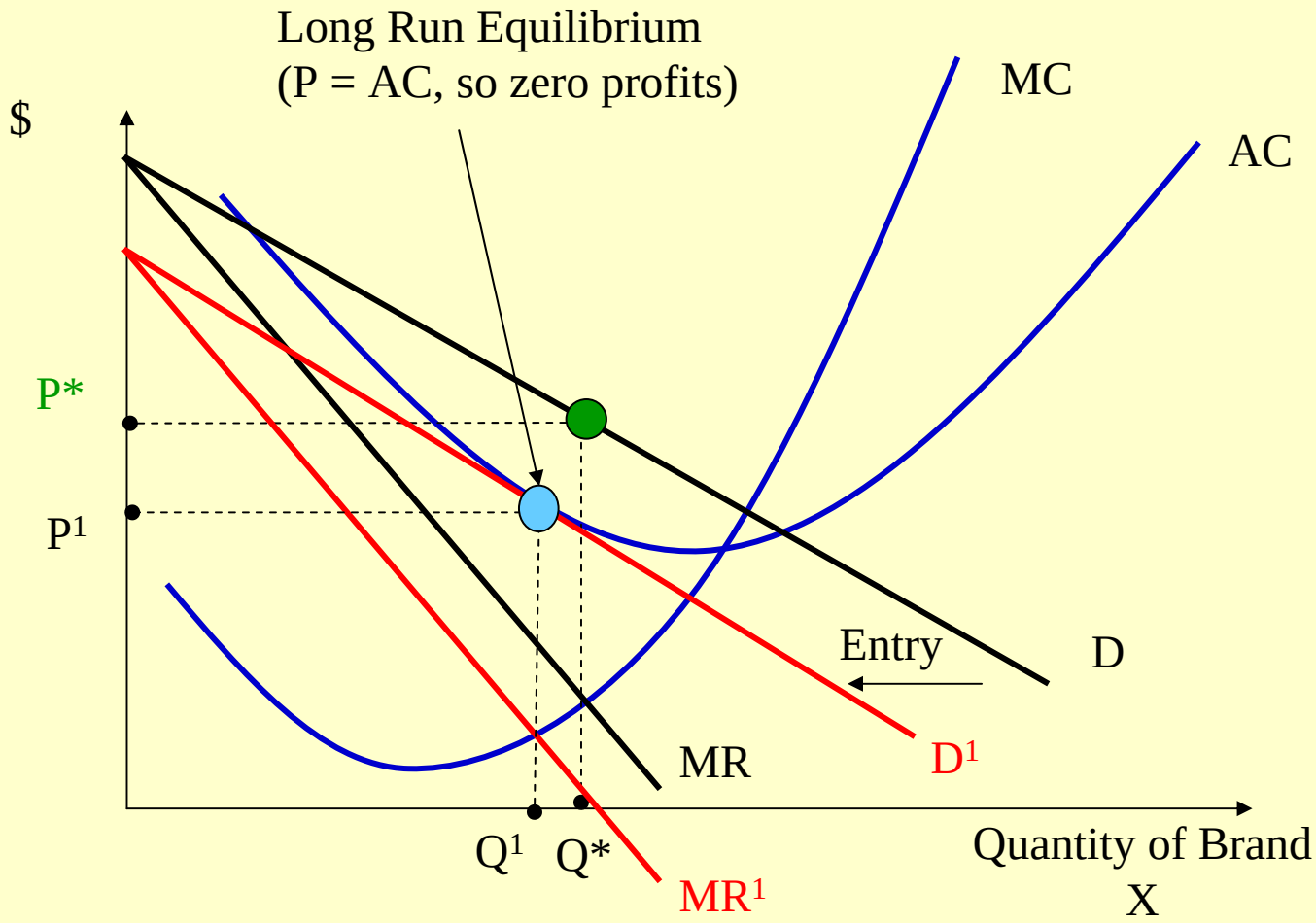


# 장기조정
## Long Run Adjustments?

- If the industry is truly monopolistically competitive, there is free entry.
  - In this case other “greedy capitalists” enter, and their new brands steal market share.
  - This reduces the demand for your product until profits are ultimately zero.

# 독점적 경쟁의 장기균형

## Long-Run Monopolistic Competition



# Monopolistic Competition

## The Good (To Consumers)

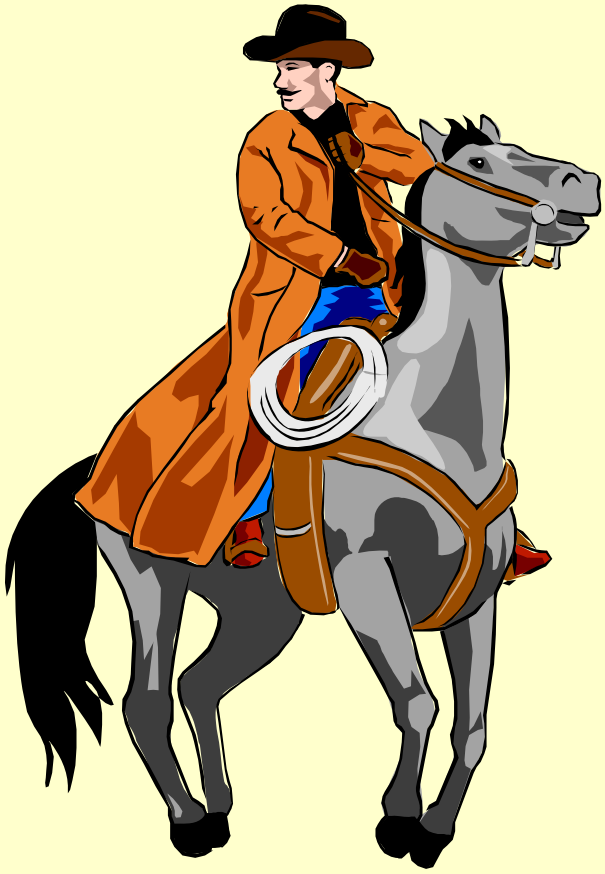
- Product Variety

## The Bad (To Society)

- P > MC
- Excess capacity
  - Unexploited economies of scale

## The Ugly (To Managers)

- P = ATC > minimum of average costs.
  - Zero Profits (in the long run)!



# 최적광고량의 결정
# Optimal Advertising Decisions

- Advertising is one way for firms with market power to differentiate their products.
- But, how much should a firm spend on advertising?
  - Advertise to the point where the additional revenue generated from advertising equals the additional cost of advertising.
  - Equivalently, the profit-maximizing level of advertising occurs where the advertising-to-sales ratio equals the ratio of the advertising elasticity of demand to the own-price elasticity of demand.

$$\frac{A}{R} = \frac{E_{Q,A}}{-E_{Q,P}}$$

# Maximizing Profits: A Synthesizing Example

- $C(Q) = 125 + 4Q^2$
- Determine the profit-maximizing output and price, and discuss its implications, if
  - You are a price taker and other firms charge $40 per unit;
  - You are a monopolist and the inverse demand for your product is $P = 100 - Q$;
  - You are a monopolistically competitive firm and the inverse demand for your brand is $P = 100 – Q$.

## Marginal Cost

- $C(Q) = 125 + 4Q^2$,
- So $MC = 8Q$.
- This is independent of market structure.

# Price Taker

- MR = P = $40.
- Set MR = MC.
  - 40 = 8Q.
  - Q = 5 units.
- Cost of producing 5 units.
  - $C(Q) = 125 + 4Q^2 = 125 + 100 = \$225$.
- Revenues:
  - PQ = (40)(5) = $200.
- Maximum profits of -$25.
- Implications: Expect exit in the long-run.

# Monopoly/Monopolistic Competition

- MR = 100 - 2Q (since P = 100 - Q).
- Set MR = MC, or 100 - 2Q = 8Q.
  - Optimal output: Q = 10.
  - Optimal price: P = 100 - (10) = $90.
  - Maximal profits:
    - PQ - C(Q) = (90)(10) -(125 + 4(100)) = $375.
- Implications
  - Monopolist will not face entry (unless patent or other entry barriers are eliminated).
  - Monopolistically competitive firm should expect other firms to clone, so profits will decline over time.

# Conclusion

- Firms operating in a perfectly competitive market take the market price as given.
  - Produce output where P = MC.
  - Firms may earn profits or losses in the short run.
  - … but, in the long run, entry or exit forces profits to zero.
- A monopoly firm, in contrast, can earn persistent profits provided that source of monopoly power is not eliminated.
- A monopolistically competitive firm can earn profits in the short run, but entry by competing brands will erode these profits over time.