Unit 5: Market Structure

Lecture Hours 9

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Contents

- **Perfect Competition**:
  - Meaning and characteristics.
  - Equilibrium price and output determination under perfect competition.
  - Short run and long run equilibrium in perfect competition.
  - *Derivation of short run supply curve of a perfectly competitive firm*
- **Monopoly**:
  - Meaning and characteristics.
  - Equilibrium price and output determination under Monopoly.
  - Short run and Long run equilibrium in Monopoly.
  - Price Discrimination by Monopoly: Meaning and Conditions.
    - Degrees of Price discrimination (First, Second and Third).
- **Monopolistic Competition**:
  - Meaning and characteristics.
  - Equilibrium price and output determination under Monopolistic competition.
  - Short run and Long run equilibrium in Monopolistic competition.
  - Equilibrium of Firm under Product Variation and Selling Expenses in Monopolistic Competition
- **Oligopoly:**
  - Meaning and characteristics.
  - Pricing under cartel (aiming at joint profit maximization)
- **Profit Maximization** and equilibrium of a firm:
  - TR-TC approach (table and diagram)
  - MR-MC approach (table and diagram).

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Market Structure

- **Meaning:**
  - Selling environment in which a firm produces and sells its product.

- **Characteristics:**
  - Number of firms.
  - Barrier to entry.
  - Degree of differentiation.
  - Knowledge (Perfect and Imperfect).

- **Major Market Structures:**
  - Perfect Competition
  - Monopoly
  - Monopolistic Competition
  - Oligopoly

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1. Perfect Competition

- **Meaning:**
  - Perfect competition is a market structure where there are large number of buyers and sellers of homogeneous product and are perfectly substituted to each other.
  - Price determined by interaction of buyers and sellers.
  - Perfect price elasticity of demand as MR never changes.

- **Characteristics:**
  - Large number of buyers and sellers.
  - Product Homogeneity with Perfect Substitutes
  - Free Entry and Exit.
  - Perfect Knowledge
  - Firm is a price taker
  - No Regulations

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Equilibrium Price and Output Determination in Perfect Competition

- **Price Determination:**
  - Two conditions under which price is determined in perfect competition:
    - Market demand equals market supply.
    - All firms are in equilibrium.

- **Output Determination:**
  - Two conditions under which output is determined in perfect competition:
    - Marginal cost is equal to Marginal Revenue **(MC = MR)**.
    - The slope of Marginal Cost is greater than Marginal Revenue. **Slope of MC > Slope of MR.**

- **Short Run Equilibirum:**
  - Here market supply cannot be varied as per change in market demand.
  - Capacity is limited.
  - Firms profit depends upon its average cost and efficiency.
  - Three cases of profit are:
    - AR = AC; normal profit (break even)
    - AR > AC; supernormal profit
    - AR < AC; loss

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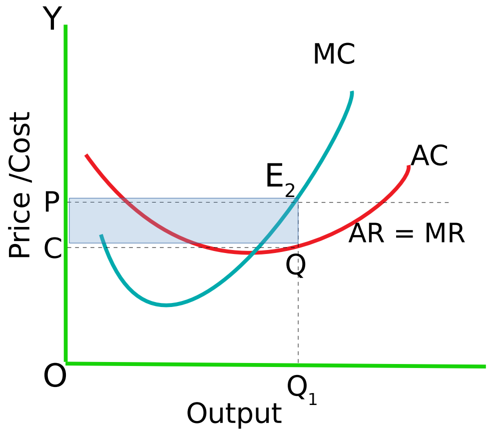
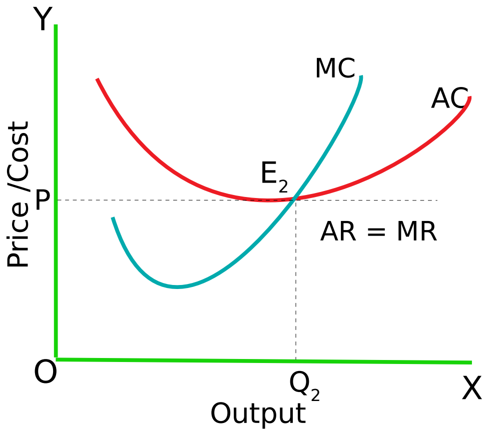
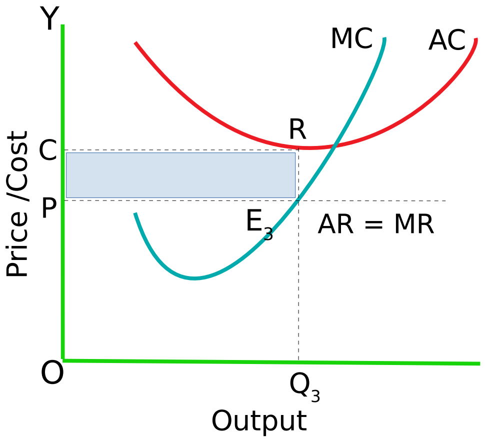
Short Run Equilibrium in Perfect Competition



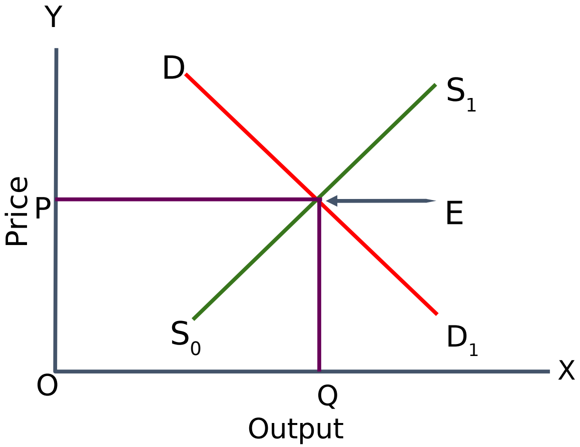
Firm A
Super normal Profit



Firm B
Normal Profit



Firm C
Loss



Industry

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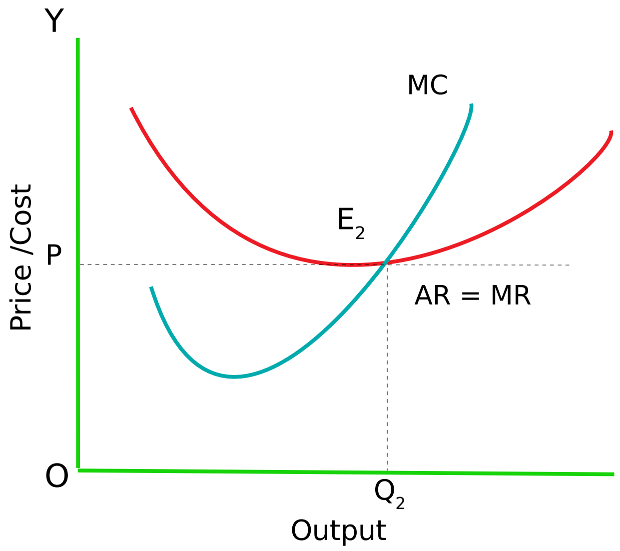
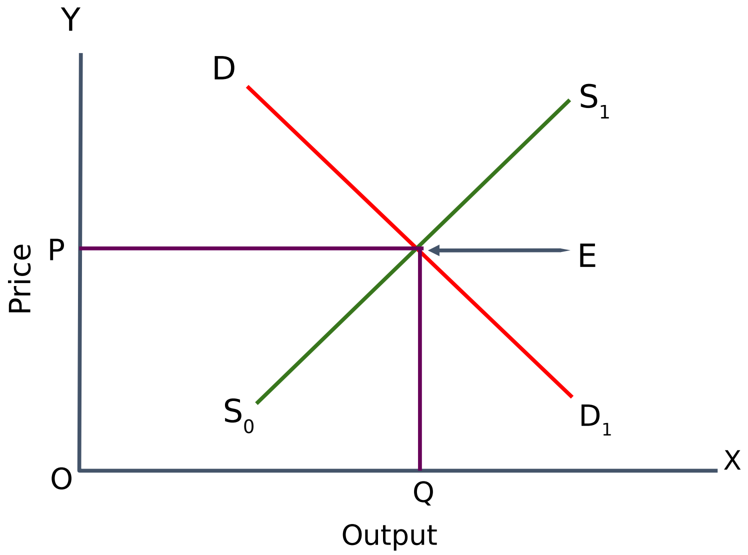
Long Run Equilibrium in Perfect Competition



A Typical Firm



Industry

There is always normal profit in perfect competition in the long run.

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2. Monopoly

- **Meaning:**
  - Greek word; ‘mono’ one, ‘poly’ seller.
  - Monopoly is a market structure where there is a single seller and there is no close substitutes.

- **Characteristics:**
  - Single seller, large number of buyers.
  - No close substitutes.
  - High barriers to entry for new firms.
  - Imperfect knowledge.
  - Firm is a price maker.
  - Inverse relation between price and output , AR slopes downward.
  - Objective of firm is profit maximization.

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Equilibrium Price and Output Determination in Monopoly

- **Price Determination:**
  - In case of monopoly, price is determined on the basis of law of demand.
    - So, AR curve or Price is negatively sloped downwards to the right.
- **Output Determination:**
  - Two conditions under which output is determined in monopoly:
    - Marginal cost is equal to Marginal Revenue **(MC = MR)**.
    - The slope of Marginal Cost is greater than Marginal Revenue. **Slope of MC > Slope of MR.**
- **Short Run Equilibrium:**
  - Market supply cannot be changed due to market demand; Limited Capacity.
  - Generally, monopoly enjoys excess profit at short run but there is no certainty due to threat from new competition, cost and revenue situation, government policy.
  - Three cases of profit are:
    - AR = AC; normal profit (break even)
    - AR > AC; supernormal profit
    - AR < AC; loss

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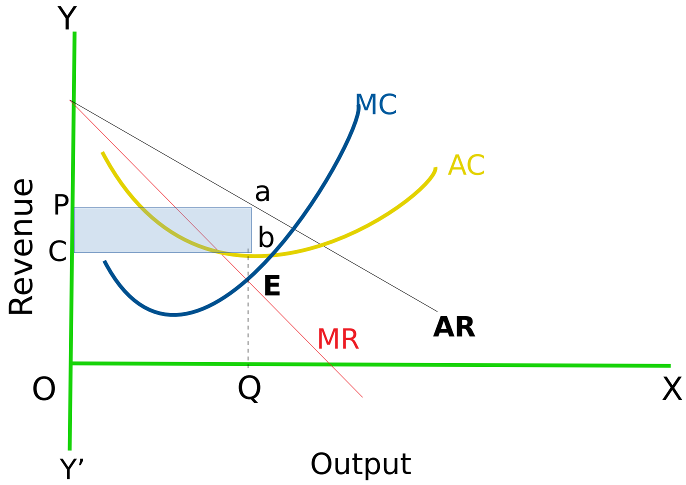
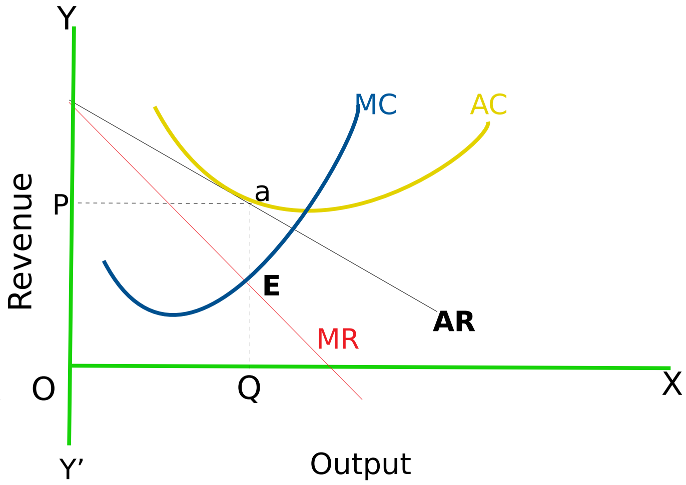
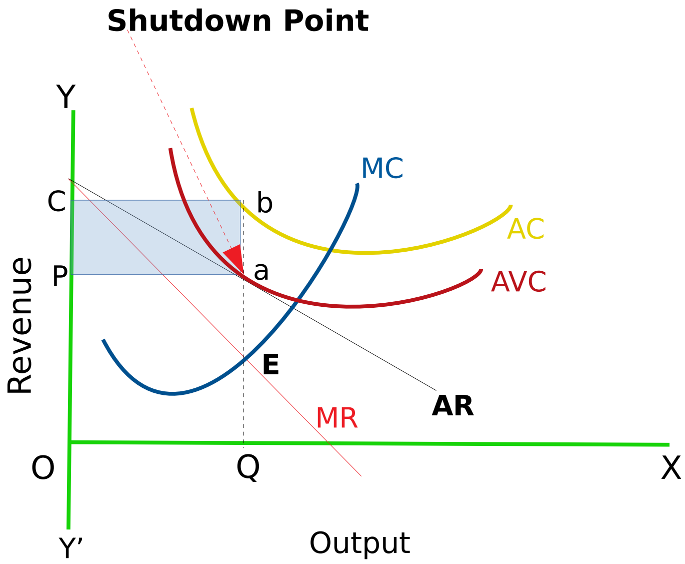
Short Run Equilibrium in Monopoly



Monopoly firm with excess profit



Monopoly firm with normal profit



Monopoly firm with loss

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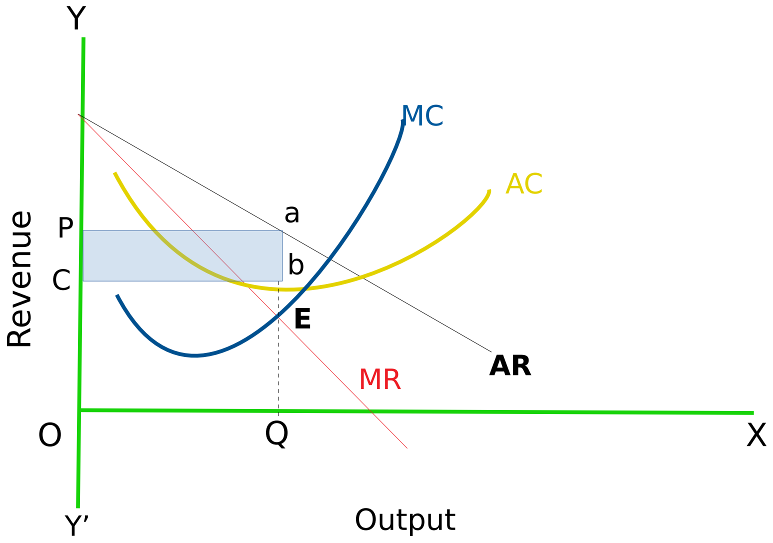
Long Run Equilibrium in Monopoly

- **Conditions in Long Run:**
  - Demand is enough to meet the output, obtains supernormal profit.
  - Less demand or small market size, makes monopolist operate at sub optimal capacity. So obtains less profit.
  - Market demand is more of large market size, s/he operates more than optimal capacity. So, obtains supernormal profit.



Monopoly firm with excess profit at sub optimal capacity

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Power of Monopoly: Price Discrimination

- **Price Discrimination:**
  - The process of dividing buyers by monopolist into two or more groups or sub-markets and charges different prices in these sub-markets.
  - Here, producer sells the same product to different buyers at different prices.
- **Goal of Price Discrimination:**
  - Maximize profit.
  - Promote Public Welfare.
  - Provide incentive to less developed economic sector.
- **Examples of Price Discrimination**
  - Doctors charge separately depending upon the income of patient.
  - Telephone companies charge differently based on business vs. non business hours.
  - Internet company may charge customers based on rural vs. urban.
  - Electricity charge more for high unit consumers, (more electronics users).

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Price Discrimination

- **Conditions for Price Discrimination:**
  - Seller has control over supply of product.
  - Market must be divided into sub-markets with different elasticities.
  - Effective separation of sub-markets.
  - Products cannot be re-sold.

- **Degree of Price Discrimination:**
  - First Degree of Price Discrimination
  - Second Degree of Price Discrimination
  - Third Degree of Price Discrimination

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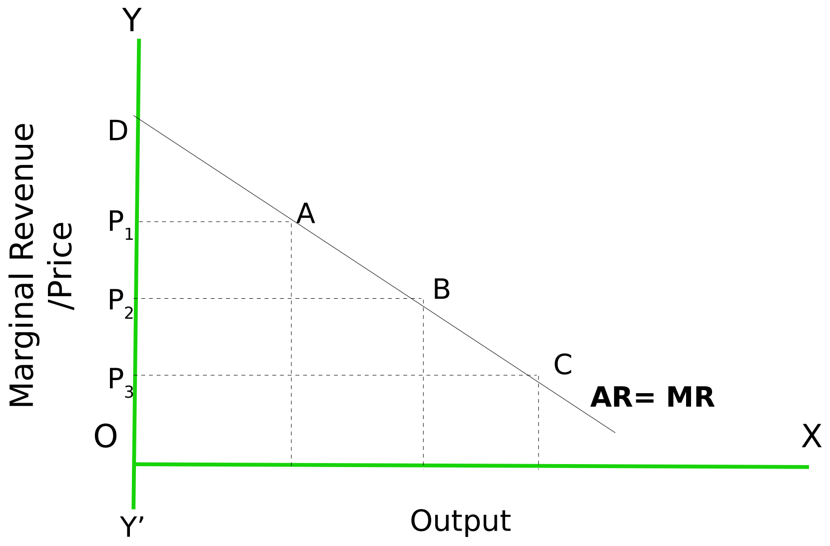
First Degree of Price Discrimination

- Monopolist tries to know the maximum amount of money **each consumer** is willing to pay for any quantity.
- Sets the price at that maximum level. Consumer surplus is taken away.
- As the output increases, the increment leads to decrease in price the consumer is willing to pay.
- It is difficult to find a consumer willing to pay at different price levels.



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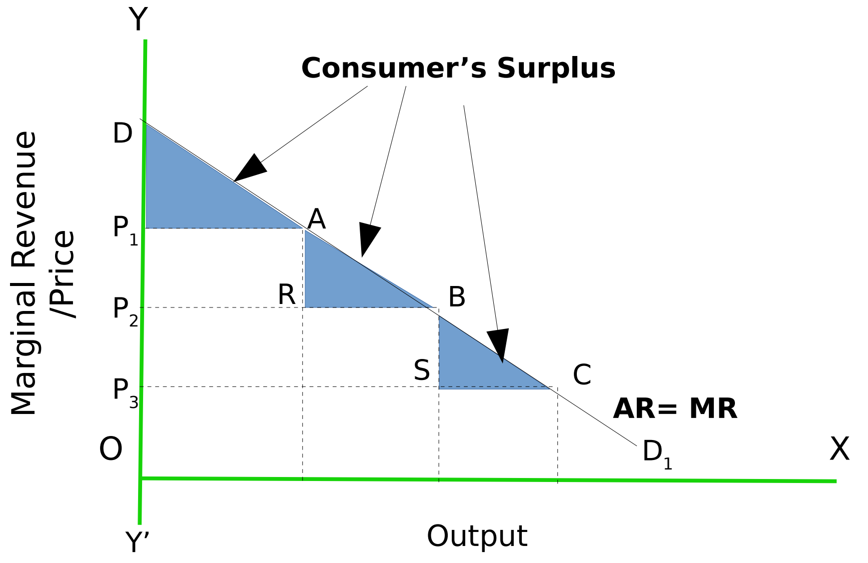
Second Degree of Price Discrimination

- Monopolist tries to know the maximum amount of money **each consumer** is willing to pay for any quantity but cannot charge for the same.
- Consumer will gain some surplus and is not taken away.
- As the output increases, the increment leads to decrease in price the consumer is willing to pay.



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Third Degree Price Discrimination

- Monopolist compare combined marginal revenue with marginal cost.
- It can be obtained by adding marginal revenues of sub-markets.
- Profit maximizing output can be achieved by:
  - $\Sigma MR = MC$ and slope of MC > Slope of ΣMR
- **Determining price and sales quantity at each sub market.**
  - If a firm charges **high price at less elastic market** and **low price at high elastic market**, it will be profitable to **divide the total output** produced in two sub markets such a way that **two marginal revenues are equal**.
  - Also, if two **sub markets are not equal**, then monopolist can always increase profits by **switching** some units of **output** from the **sub-market in which marginal revenue is less** to **sub-market where marginal revenue is more**.

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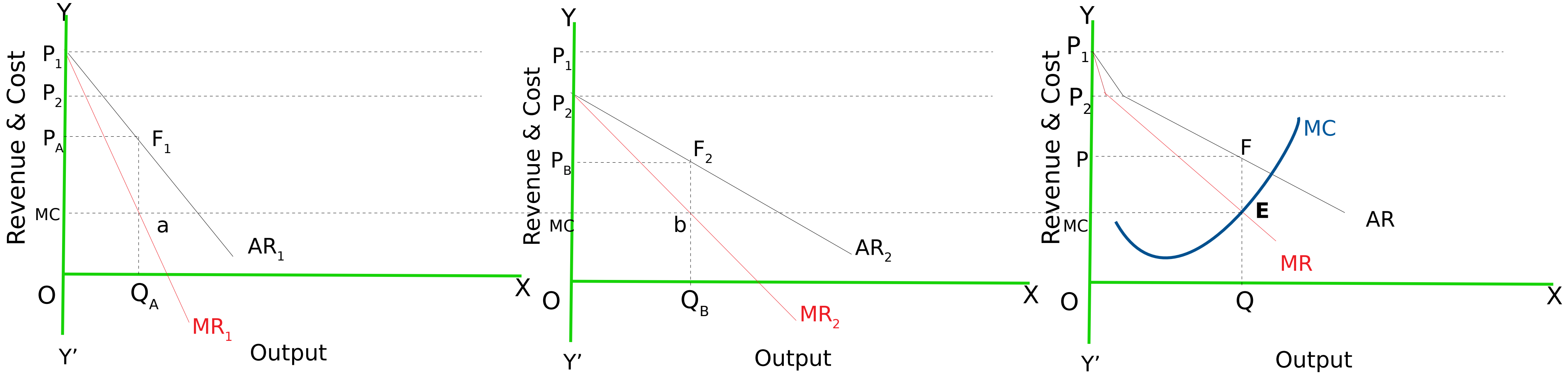
Third Degree Price Discrimination



(i) Sub Market A **(ii) Sub Market B** **(iii) Total Market**

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3. Monopolistic Competition

- **Meaning:**
  - Introduced by American Economist, E.H. Chamberlin.
  - Form of market where there are sellers of a particular product, but each seller sells somewhat differentiated product.

- **Characteristics:**
  - Large number of buyers and sellers.
  - Differentiated product.
    - In terms of size, quality, design, service, colour, package, etc.
  - Free Entry and Exit.
  - Imperfect Knowledge
  - Firm is a price taker
  - Non price competition.
  - Goal is to maximize profit.

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Equilibrium Price and Output Determination in Monopolistic Competition

- **Price Determination:**
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    - AR < AC; loss

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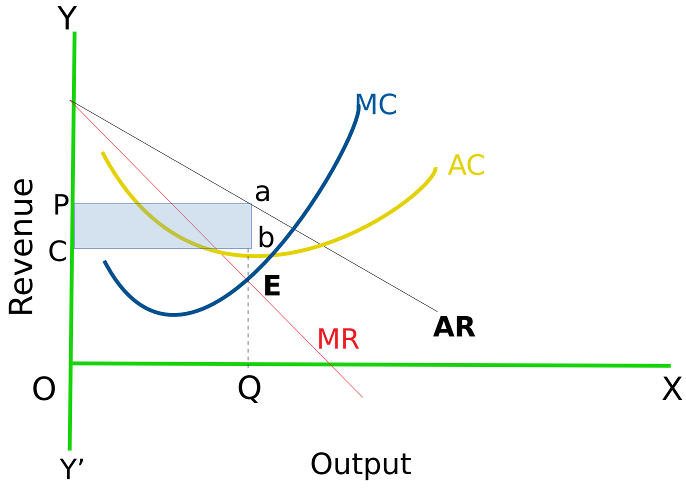
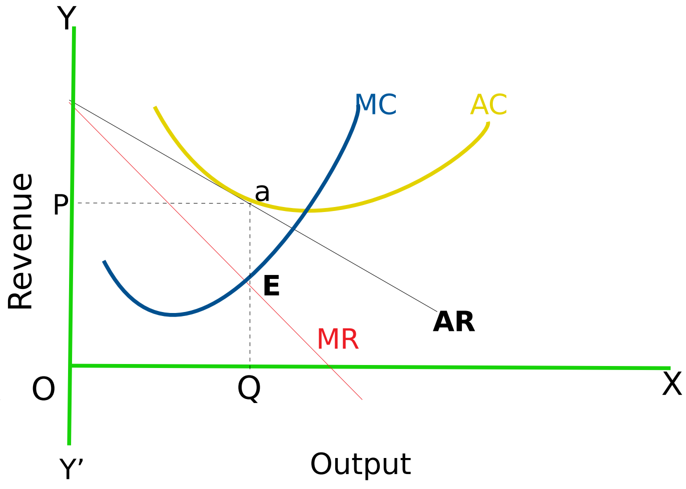
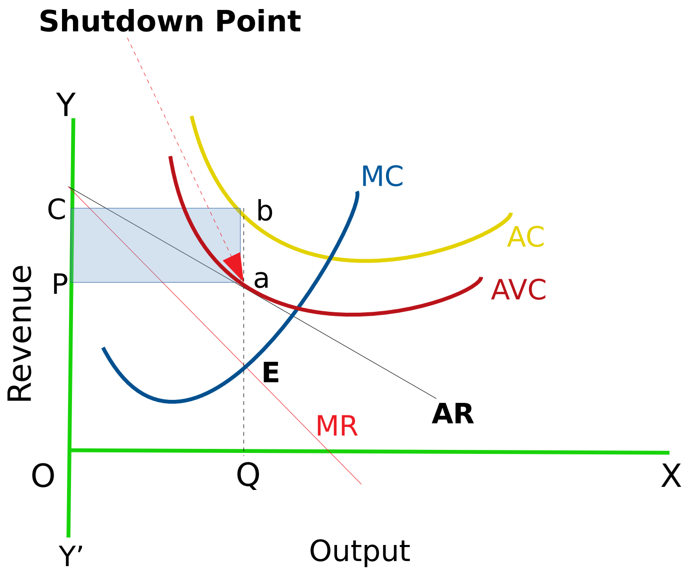
Short Run Equilibrium in Monopolistic Competition



Firm with excess profit



Firm with normal profit



Firm with loss

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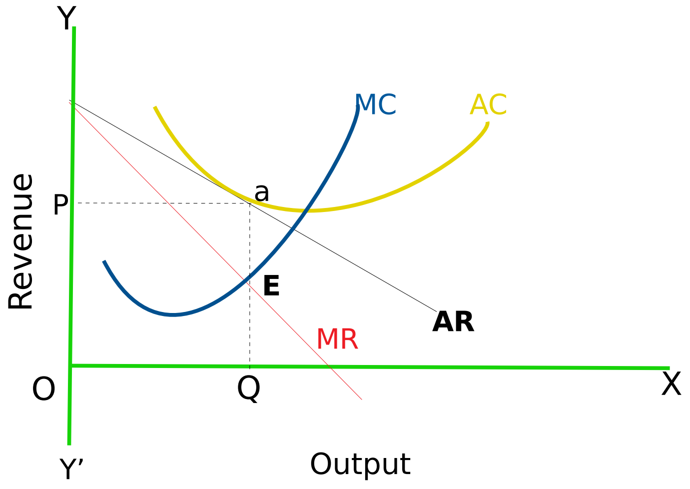
Long Run Equilibrium in Monopolistic Competition

- **Conditions in Long Run:**
  - Entry of firms and increased cost of expansion in the long run makes monopolistic firm to run in sub-optimal capacity. This leads to reduced efficiency due to underutilized capacity.
  - This also happens due to imperfect knowledge about the market leading to normal profit in the long run for monopolistic firm.



Firm with normal profit at Sub-Optimal Capacity

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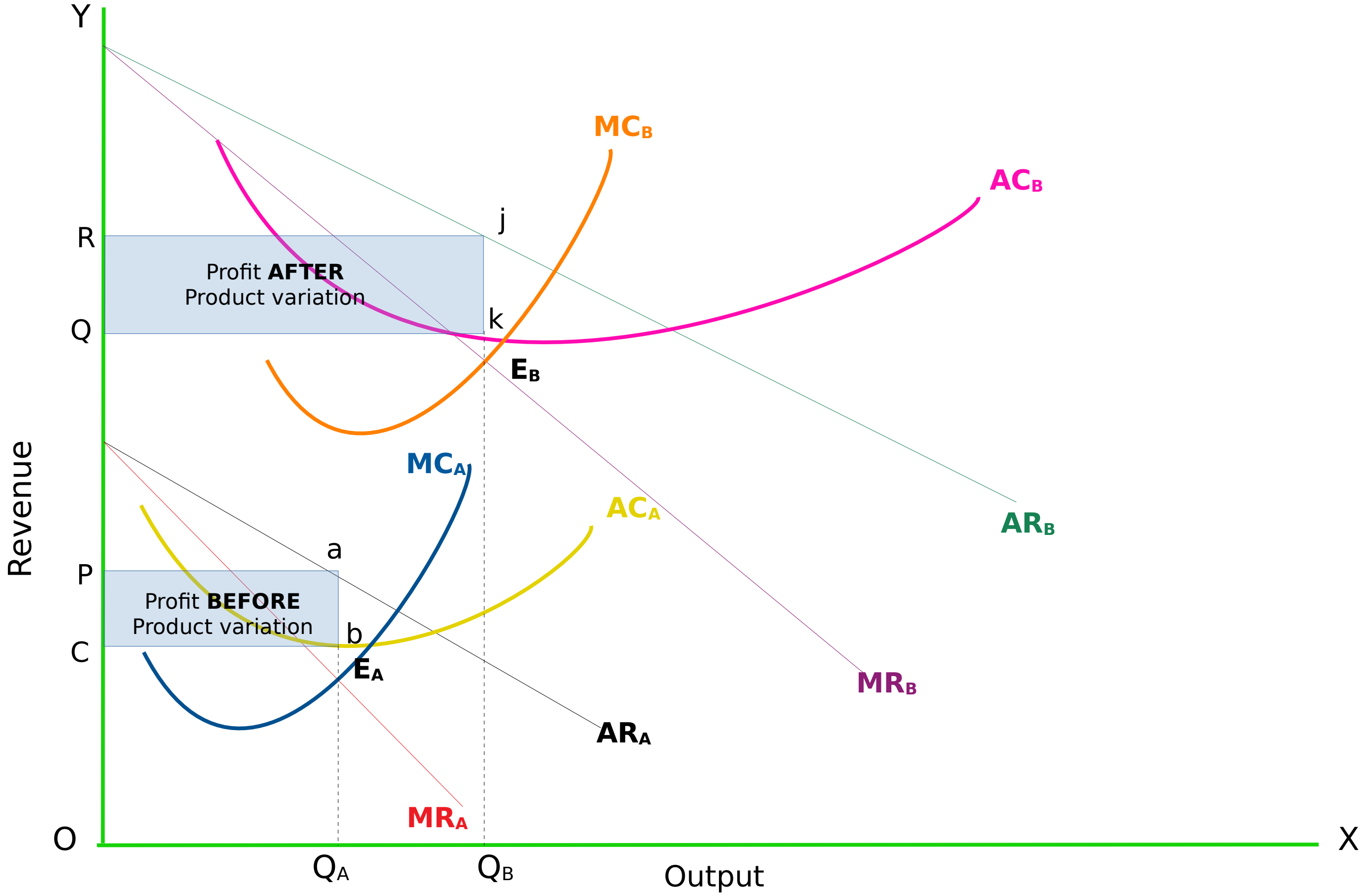
Equilibrium of Firm Under Product Variation



Firm under Product Variation

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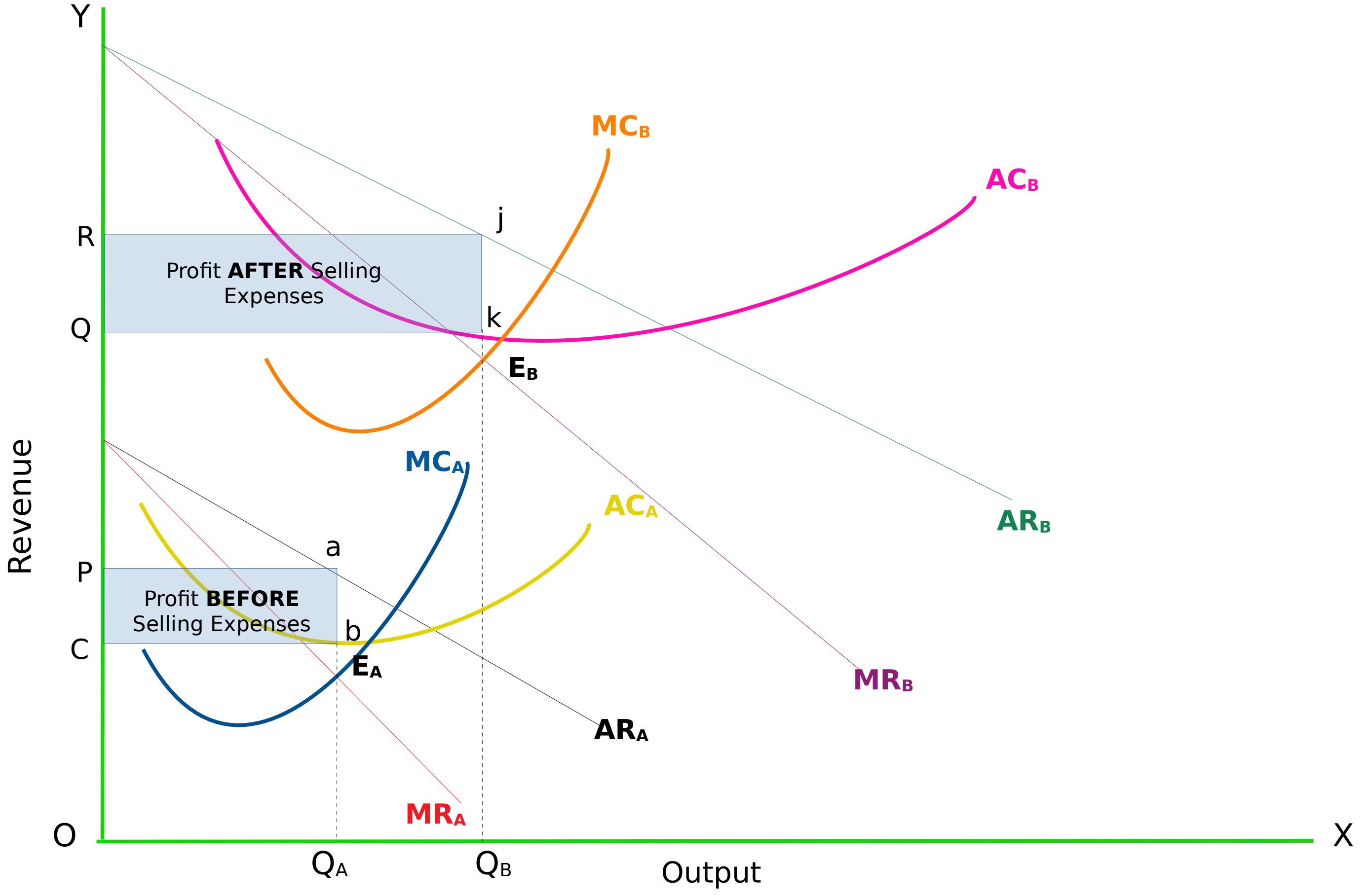
Equilibrium of Firm Under Selling Expenses



Firm under Selling Expenses

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4. Oligopoly

- **Meaning:**
  - Greek word: ‘Oligo’ meaning few and ‘poly’ meaning sellers.
  - The market structure where there are few firms producing similar and differentiated goods and services.
  - Existence of more than two till 15 firms can make up oligopoly market.
  - Oligopoly can be differentiated on the basis of
    - Product Differentiation
    - Basis of Entry
    - Basis of Price Leadership
    - Basis of Agreement

- **Features:**
  - Small number of Sellers.
  - Homogeneous or Heterogeneous product.
  - Interdependence of Decision Making
  - Barriers to Entry
  - Non-price Competition
  - Difficult to derive price and output.
  - Imperfect knowledge

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CARTEL

- A formal or overt agreement among the competitor firms in the oligopoly market on price or output or market area or use and construction of productive capacity, or promotional expenditure or purchase and use of inputs.
- Goal is to centralize certain managerial decisions and function of individual firms in the industry with a view to promoting common benefits.
- **Types**:
  - Centralized Cartel
  - Market sharing Cartel
-

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Types of Cartel

- **Centralized Cartel:**
  - Formal agreement of firm to set monopoly price to allocate outpout to develop profit sharing mechanism.
  - Firm agree to assign a central management board to delegate authority. Central board can: determine total output, price and market share to each member firm.
- **Market Sharing Cartel**
  - Provides more degree of freedom in production and sales to the firm as there is no central management board. There are three types of market sharing cartel:
  - **Non-price competition agreement**
    - Uniform price is fixed and each has freedom to sell their product as many as they wish but profit range may differ.
  - **Quota System:**
    - Fixes quota of market share for each firms. Depends upon strength of firm in pre-cartel period.
  - **Sharing Specific Geography:**
    - Sell only to customers in their own allocated geographical areas and agree not to sell to customers beyond that particular area.

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Pricing under Join Profit Maximization Cartel

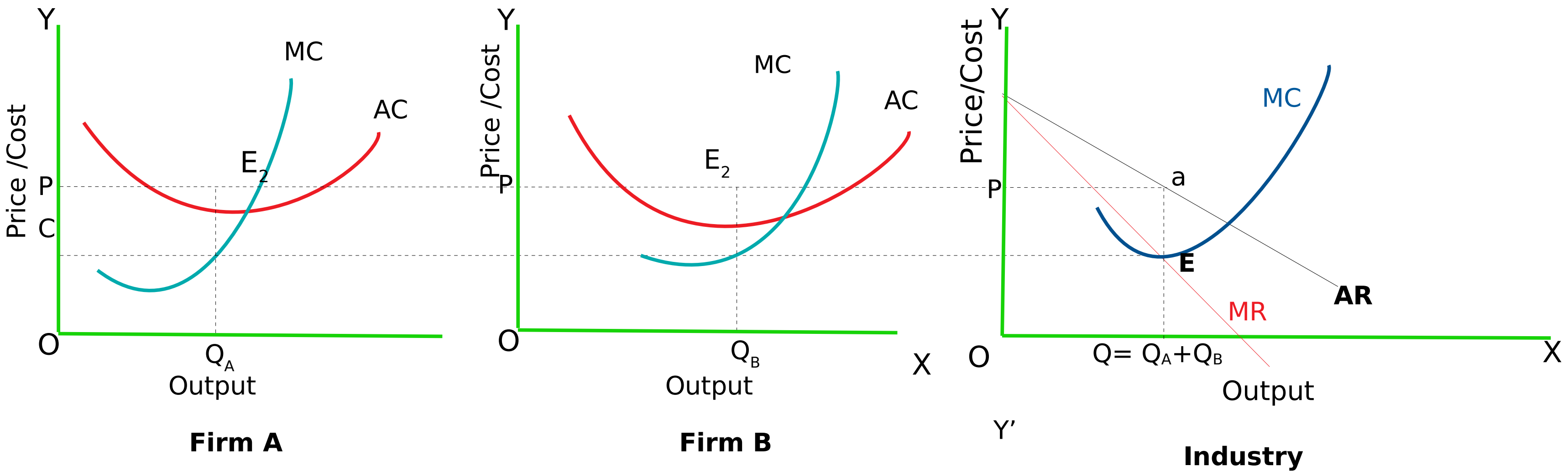

Fig (C)

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Profit Maximization of a Firm

- Profit maximization of a firm can be analyzed for both Perfect and Imperfect Market in two ways.
  - Total Revenue – Total Cost Approach **(TR-TC)**
  - Marginal Revenue = Marginal Cost Approach **(MR = MC)**

- **Total Revenue - Total Cost Approach (TR-TC):**
  - Firm is in equilibrium when it produces the output that maximizes the difference between total revenue and total cost.
  - This gives maximum total profit.
  - Perfect Competition: TR varies proportionately, slopes upward to the right at 45 degree.
  - Imperfect Competition (Monopoly, Monopolistic, Oligopoly): TR increases at decreasing rate as output increases.
  - While total cost increases at decreasing rate and later increases at increasing rate as discussed in Cost chapter (inverted S curve).

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Profit Maximization in Perfect Competition "TR-TC Approach"

Output	Price	TR	TC	Total Profits (π)
0	40	0	60	-60
1	40	40	90	-50
2	40	80	110	-30
3	40	120	120	0
4	40	160	125	35
5	40	200	150	50
6	40	240	185	55
7	40	280	240	40
8	40	320	320	0
9	40	360	420	-60

Draw this in graph

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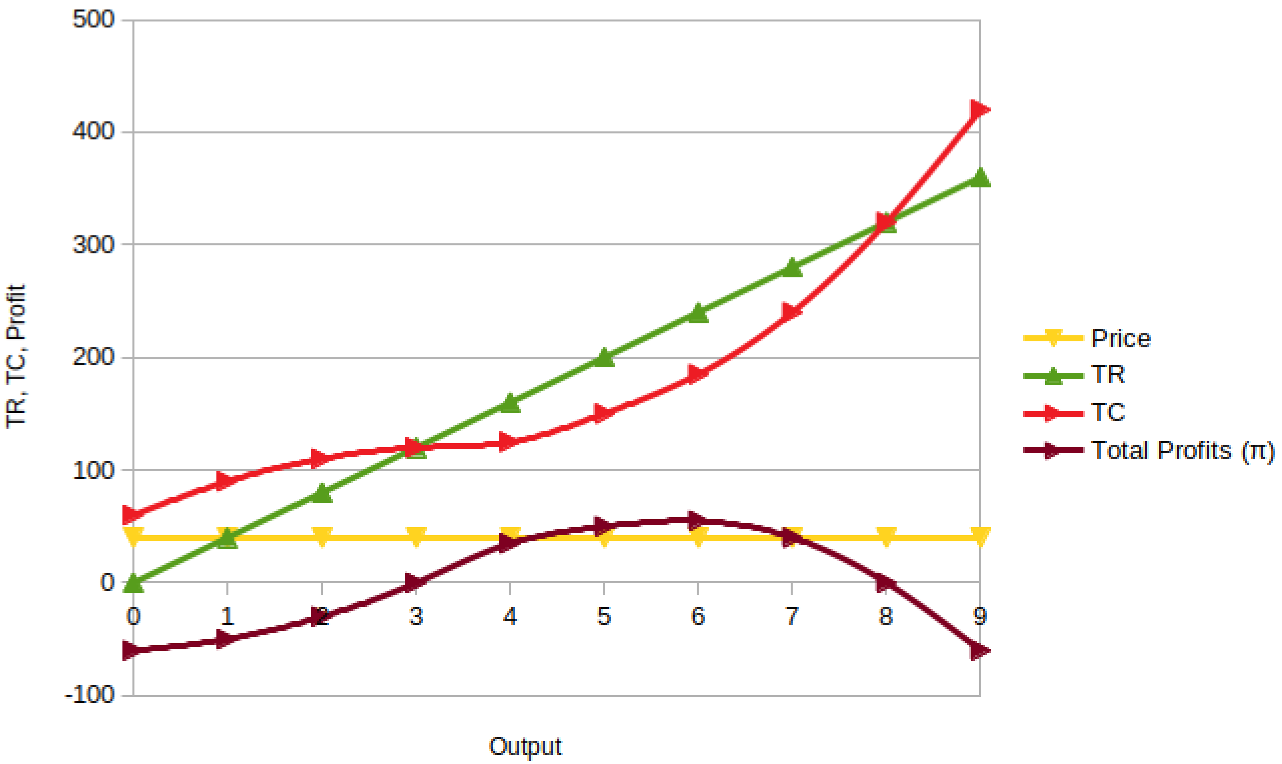
Figure of Profit Max. in Perfect Competition



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Profit Maximization in Imperfect Competition (Monopoly and Monopolistic)

"TR-TC Approach"

Output	Price	TR	TC	Total Profits (π)
0	40	0	76	-76
1	38	38	96	-58
2	36	72	110	-38
3	34	102	120	-18
4	32	128	128	0
5	30	150	138	12
6	28	168	152	17
7	26	182	164	18
8	24	192	180	12
9	22	198	198	0
10	20	200	220	-20
11	18	198	246	-48
12	16	192	176	-84

Draw this in graph

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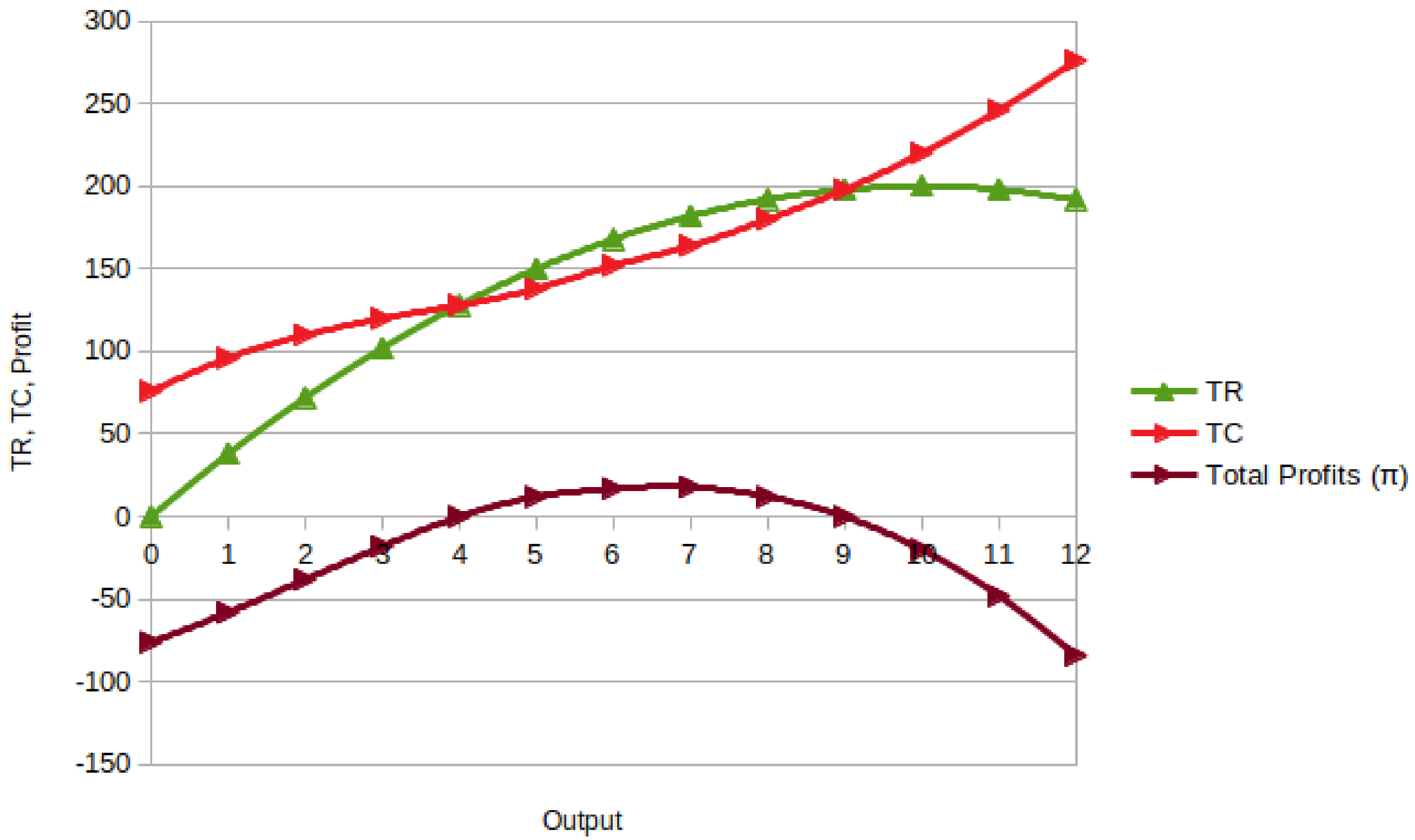
Figure of Profit Max. in Imperfect Competition



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Profit Maximization in MR=MC Approach

- In MC-MR approach two conditions must be fulfilled:
  - MC = MR
  - MC must cut MR from below i.e. slope MC is greater than slope of MR.
- **In Perfect Competition:**
  - TR increases at constant rate as output.
  - MR remains constant as output increases.
  - MR slopes parallel to X-axis.
- **In Imperfect Competition (Monopoly/Monopolistic):**
  - TR increases at diminishing rate as output increases.
  - MR decreases continuously as output increases.
  - MR curve slopes downward to the right.

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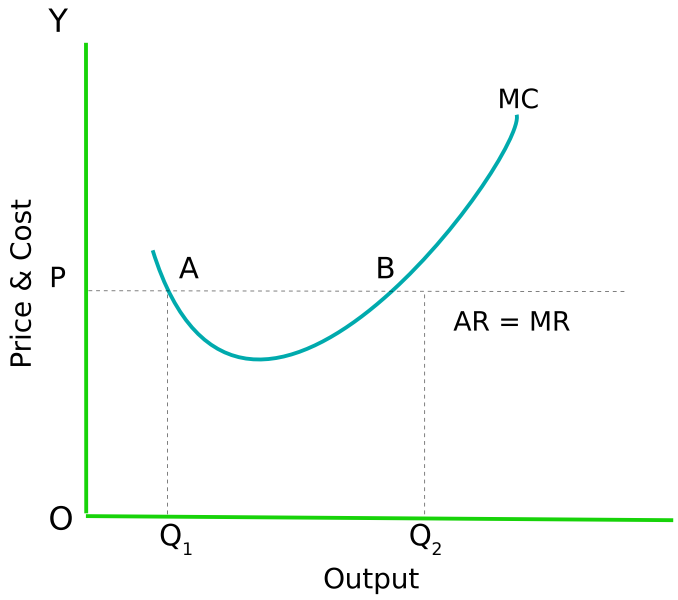
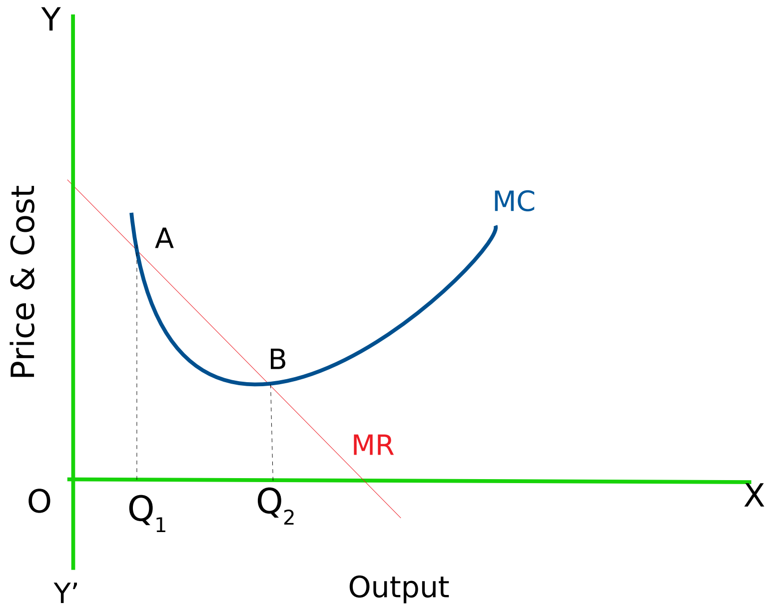
Profit Maximization in MR=MC Approach



Perfect Competition



Monopoly/Monopolistic/Imperfect Competition

See Page 232 for Numerical Example & Exercises

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