



MICROECONOMICS UNIT 4

Imperfect Competition

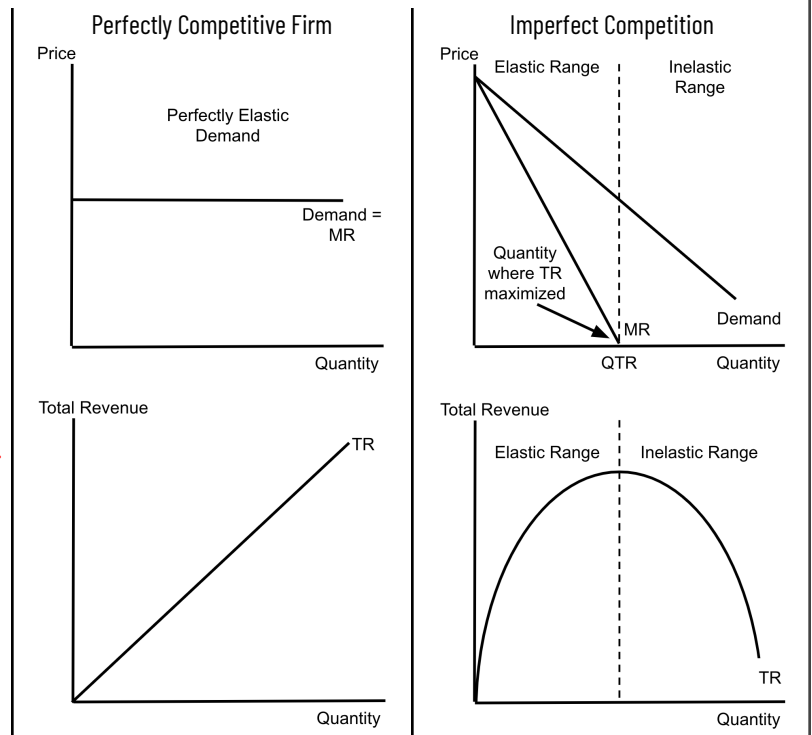


BIG PICTURE IDEAS

- #1. For perfect competition, demand and marginal revenue are **equal**. For imperfect competition, demand is **greater** than marginal revenue.
- #2. A market controlled by one firm with high barriers to entry is called a **monopoly**.
- #3. Price **discrimination** is the idea of selling the same product to different people for different prices.
- #4. Firms in a monopolistically competitive market sell **differentiated** products, face low barriers to entry, and earn no economic profit in the **long** run.
- #5. An **oligopoly** is made up of few interdependent firms that have a tendency to collude. When competing, they use **game** theory to determine the best course of action.

Topic 4.1- Imperfect Competition

1. On the vertically stacked graphs to the right, draw the demand and marginal revenue on the top graph and the total revenue on the bottom graph for each type of firm.
2. Explain why the demand equals the marginal revenue in perfect competition. **Perfectly competitive firms are price takers and they sell every unit at the same price. The additional revenue of the next unit sold is the same as the price.**
3. Explain why the demand is greater than marginal revenue for imperfectly competitive firms.
To sell another unit, the firm must lower the price of the next unit and the units it could have sold at a higher price. The additional revenue of the next unit is the price minus the revenue they lose from lowering the price of all units.
4. On the stacked graphs to the right, identify the inelastic and/or elastic ranges of the demand curves.
5. Imperfectly competition always produce in the **elastic** range of the demand curve.
6. Total revenue is maximized when MR is **zero**.



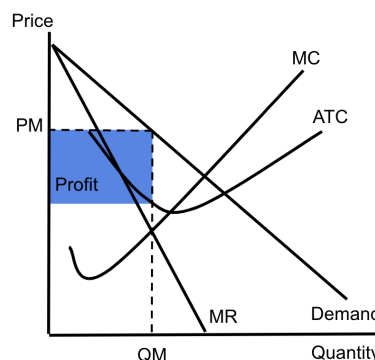
Topic 4.2- Monopoly

7. Identify three examples of barriers to entry. **High start-up costs (economies of scale), control of key resources, governmental or legal barriers**

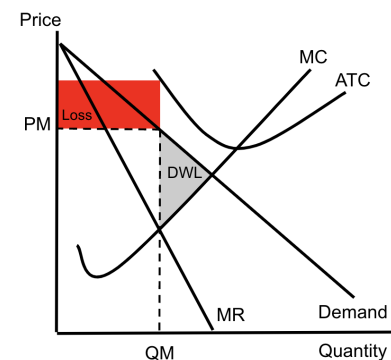
True or False

8. If a monopoly is earning economic profit, other firms will enter the market. **False**
9. Monopolists can maximize total revenue by producing where $MR = MC$. **False**

10. Draw a monopoly making a profit.



11. Draw a monopoly making a loss.

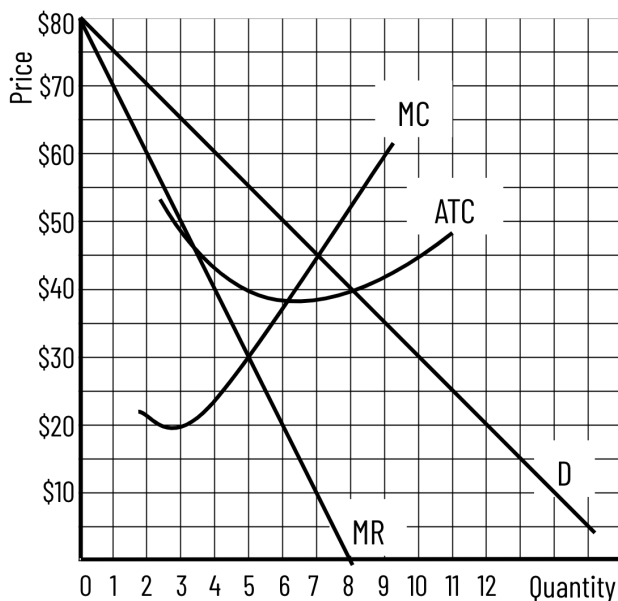




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Topic 4.2- Monopoly (continued)



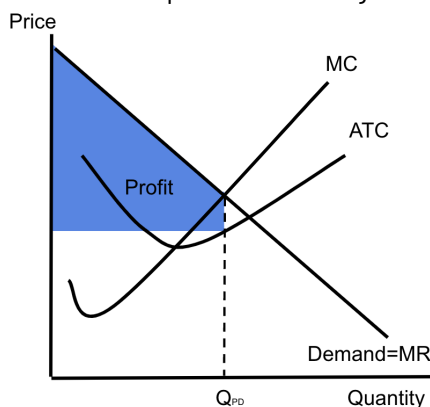
Use the graph to the left to identify the following.

12. Price and quantity for an unregulated monopoly.
Price = \$55, Quantity = 5 (where $MR=MC$)
13. Profit for an unregulated monopoly.
Profit = \$75 = $TR - TC = \$275 - \200
14. Consumer surplus for an unregulated monopoly.
 $\$62.50 = \frac{1}{2}(5) \times \25
15. Deadweight loss for an unregulated monopoly.
 $\$25 = \frac{1}{2}(2) \times \25
16. Price and quantity at the allocatively efficient output.
Price = \$45, Quantity = 7 (where Demand = MC)
17. Quantity where total revenue is maximized.
Quantity = 8 (where $MR = 0$)
18. The price and quantity where the firm makes no economic profit.
Price = \$40, Quantity = 8 (where Demand = ATC)
19. Is the demand at the price \$25 in the elastic or inelastic range of the demand curve? **Inelastic. A higher price would cause TR to increase**

20. A **natural** monopoly is when it is best to have only one firm in an industry due to economies of scale.

Topic 4.3- Price Discrimination

21. Identify the three conditions necessary for a firm to price discriminate. **1. The firm must not be a price taker. 2. The firm must be able to segregate the market and identify consumers that are willing to pay more 3. The firm must be able to make sure consumers cannot resell the product to other consumers.**
22. If a regular unregulated monopoly started perfectly price discriminating, what would happen to consumer surplus and deadweight loss? **There would be no consumer surplus and no deadweight loss.**
23. Draw and label a price discriminating monopoly making profit.



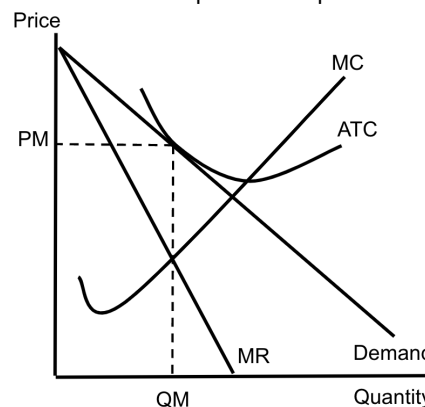
Label the quantity Q_{pd}

Shade the area of profit

24. The firm above has **allocative** efficiency since it generates no deadweight loss.

Topic 4.4- Monopolistic Competition

25. How is monopolistic competition different from perfect competition? **Monopolistic competition has differentiated products instead of identical products. Firms in monopolistic competition are price makers and have a downward-sloping demand curve.**
26. If a monopolistically competitive firm is making a profit in the short-run, what will happen to the demand and number of firms in the long run? **New firms enter to make profit. The demand for each firm falls until each firm makes no economic profit.**
27. Draw and label monopolistic competition in the long-run.



Label the price PM

Label the quantity QM

28. The firm above has neither type of efficiency and creates excess **capacity** since QM is less than minimum ATC.



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■ Topic 4.4- Oligopoly and Game Theory

29. A colluding oligopoly is called a **cartel**.
30. **Game** theory is the study of strategic interactions among rational decision makers and can be analyzed using a chart called a **payoff** matrix.
31. What is a dominant strategy? **The optimal option for a player regardless of how other players act.**

32. What is a Nash equilibrium? **The optimal outcome where neither player can make themselves better off by deviating from the current strategy, given the other players' actions.**

Answer the questions using the payoff matrix to the right:

33. If David decides to advertise now and Lindsey decides to advertise later, what is David's expected profit? **\$1,500**
34. What is Lindsey's dominant strategy? **Advertise Now**
35. What is David's dominant strategy? **David does not have a dominant strategy**
36. How much profit will David earn at Nash equilibrium? **\$4,500 (Lindsey always chooses now so David will choose later)**

Assume that two business owners are deciding between advertising now and advertising later. The chart shows expected profit with Lindsey's on the left.

		David			
		Now		Later	
Lindsey	Now	\$6,000	\$4,000	\$3,000	\$4,500
	Later	\$1,000	\$1,500	\$1,500	\$1,300

Assume the advertising company offers a deal that increases the profit for both owners by \$2,000, but only if they advertise later. Create a new payoff matrix based on these changes and complete the following.

		David			
		Now		Later	
Lindsey	Now	\$6,000	\$4,000	\$3,000	\$6,500
	Later	\$3,000	\$1,500	\$3,500	\$3,300

37. What is Lindsey's dominant strategy? **Lindsey does not have a dominant strategy**
38. What is David's dominant strategy? **Advertise Later**
39. How much profit will David earn at Nash equilibrium? **\$3,300. David will choose later so Lindsey will choose now.**
40. Assume Lindsey and David collude. Which of them would have an incentive to cheat? **David. If they collude they will both choose to advertise now, but David can make more money by advertising later. David has an incentive to cheat.**

■ Unit Review

True or False

41. The graph for a firm in monopolistic competition in the short run is the same as a non-price discriminating monopoly. **True**
42. An unregulated monopoly has lower prices and greater quantity than a competitive market. **False**
43. A colluding oligopoly acts as a monopoly and creates deadweight loss. **True**
44. A per unit tax on a non-price discriminating monopoly will decrease deadweight loss. **False**
45. A natural monopoly has economies of scale at the allocatively efficient output. **True**
46. Jacob Clifford has helped me learn and love microeconomics. **True?**
47. Identify the characteristics of each market structure.

Perfect Competition

- Many small firms
- Identical products
- Price takers
- No barriers to entry
- No advertising
- Efficient (No DWL)

Monopolistic Competition

- Many small firms
- Differentiated products
- Some control over price
- Low barriers to entry
- Non-price competition
- Inefficient (creates DWL)

Oligopoly

- Few large firms (less than 10)
- Control over price
- High barriers to entry
- Mutual interdependence
- Inefficient (creates DWL)

Monopoly

- One firm
- Unique product
- Total control over price
- High barriers to entry
- Inefficient (creates DWL)