MICROECONOMICS UNIT 2

Supply and Demand

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BIG PICTURE IDEAS

#1. The law of demand shows a negative relationship between price and quantity demanded and the law of supply shows a positive relationship between price and the quantity supplied.
#2. Elasticity measures the responsiveness of one economic variable to a change in another.
#3. Consumer surplus, producer surplus, and deadweight loss are used to analyze the efficiency and welfare effects of a market.
#4. A demand and supply graph shows the equilibrium price and equilibrium quantity and can be used to predict and analyze changes in a market.
#5. The effects of government intervention, like taxes, subsidies, tariffs, and price controls, can be analyzed using supply and demand.

Topic 2.1- Demand

1. The law of demand states there is an inverse (or negative) relationship between price and quantity demanded .
2. Why is the market demand curve downward sloping? Buyers (consumers) are willing to buy more units when the price falls and less units when the price increases due to the substitute effect, income effect, and law of diminishing marginal utility.
3. What are the five shifters of demand? Tastes and preferences, number of consumers, price of related goods (Substitutes and complements), income, future expectations.
4. Goods A and B are substitutes. An increase in the price of Good A will cause the demand for Good B to increase .
5. Complements are bought and used together.
6. Good X is an inferior good. An increase in incomes will cause the demand for X to decrease .

Topic 2.2- Supply

7. The law of supply states there is a direct (or positive) relationship between price and quantity supplied .
8. Why is the market supply curve upward-sloping? Higher prices give profit-seeking firms an incentive to produce more output.
9. What are the five shifters of supply? Prices of resources, number of producers, technology, government action (taxes, subsidies, regulations), expectations of future profit
10. Good X is an input of Good Z. A decrease in the price of Good X will cause the supply of Good Z to increase .
11. An excise tax on Good A will cause the supply to decrease and shift to the left .
12. Subsidies are government payments to sellers.

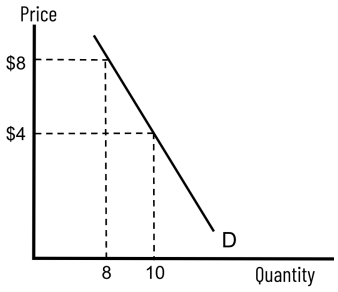
Topic 2.3- Price Elasticity of Demand

13. Identify the price elasticity of demand (PED) equation.

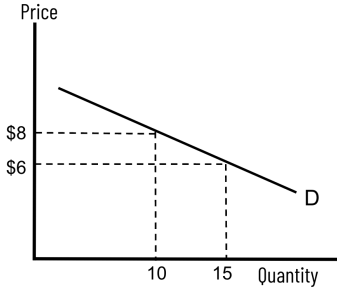
$$\frac{\text{Percent change in quantity demanded}}{\text{Percent change in price}}$$

16. List three characteristics of goods with inelastic demand. Goods with inelastic demand are necessities, have few substitutes, and have an elasticity coefficient less than 1.
17. What is the price elasticity of demand coefficient for a good with perfectly inelastic demand? 0 (zero)
18. If the price of Good Y increased from $10 to $12 and the quantity demanded decreased from 200 to 150, what is the price elasticity of demand coefficient? Show your work. -1.25 = -.25/.2 The quantity decreased by 25% as the price increased by 20%. The demand is relatively elastic.

14. Draw an inelastic demand curve



15. Draw an elastic demand curve



19. Use the total revenue test to fill in the blanks with ↑ or ↓.

Inelastic Demand	Elastic Demand
Price ↑, TR ↑	Price ↑, TR ↓
Price ↓, TR ↓	Price ↓, TR ↑

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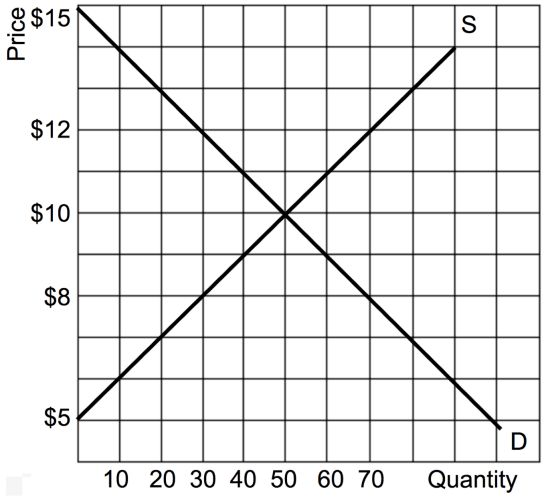
Topic 2.4- Price Elasticity of Supply

20. Identify the price elasticity of supply (PES) equation.
$$\frac{\text{Percent change in quantity supplied}}{\text{Percent change in price}}$$
21. List three characteristics of goods with inelastic supply. The market has high barriers to entry (few firms), high price of alternative inputs, difficult or time consuming to produce.
22. If the price of Good X increased from $10 to $15 and the quantity supplied increased from 200 to 250, what is the price elasticity of supply coefficient? Show your work. .5 = .25/.5 The quantity increased by 25% as the price increased by 50%. The demand is relatively inelastic.
23. True or False: The total revenue test cannot be used to determine if the supply is elastic or inelastic. True

Topic 2.5- Other Elasticities

24. Cross-price elasticity of demand (XED) is used to determine if two goods are substitutes or complements .
25. Identify the cross-price elasticity of demand (XED) equation.
$$\frac{\text{Percent change in quantity of Good A}}{\text{Percent change in price of Good B}}$$
26. Income elasticity of demand (YED) is used to determine if a good is normal or inferior .
27. Identify the income elasticity of demand (YED) equation.
$$\frac{\text{Percent change in quantity}}{\text{Percent change in income}}$$
28. True or False: If the income elasticity of Good X is .5 then it is an inferior good. False
29. True or False: If the XED is positive for substitutes. True

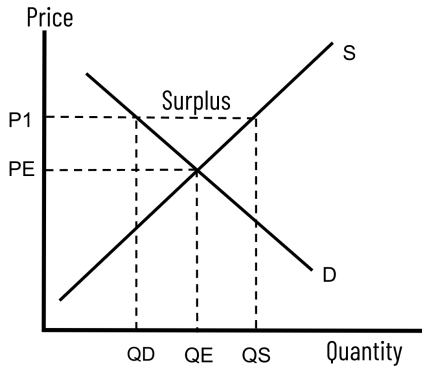
Topic 2.6- Equilibrium and Consumer and Producer Surplus



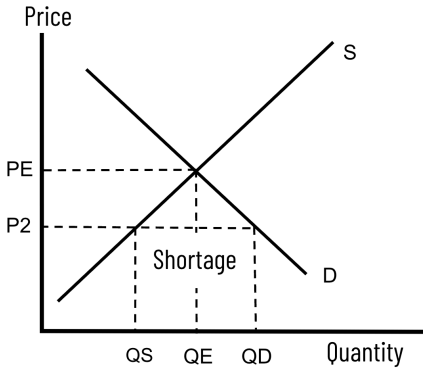
30. Define consumer surplus (CS). Difference between how much buyers are willing to pay and the price they do pay
31. Define producer surplus (PS). Difference between the price and how much the seller is willing to sell the product for
32. Define deadweight loss (DWL). Lost efficiency when the socially optimal quantity is not being produced.
33. Calculate the CS at the equilibrium price. Show your work. $125 = ($15-$10) x 50/2
34. Calculate the CS if the price was $12. Show your work. $45 = ($15-$12) x 30/2
35. Calculate the deadweight loss if the market produced only 20 units. $90 = ($13-$7) x 30/2

Topic 2.7- Market Disequilibrium and Changes in Equilibrium

Graph #1



Graph #2



36. Draw a shortage on graph #1. Label the price (P1) and quantity supplied (Qs) and demanded (Qd).
37. Draw a surplus on graph #2. Label the price (P2) and quantity supplied (Qs) and demanded (Qd)
38. If market forces begin to return graph #2 to equilibrium the quantity demanded will decrease and quantity supplied will increase .
39. A change in price does not shift the demand curve or the supply curves. Instead, it moves along the curves.

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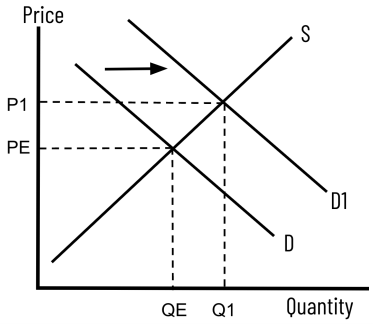
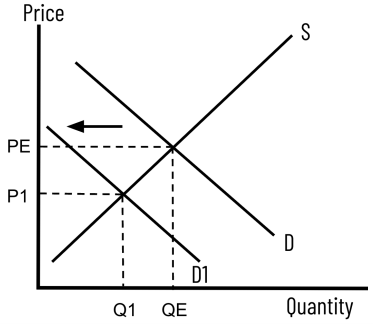
Topic 2.7- Market Disequilibrium and Changes in Equilibrium (continued)

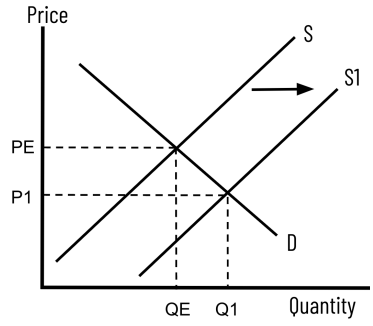
40. Draw a demand increase



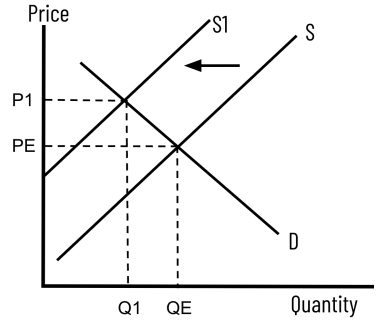
41. Draw a demand decrease



42. Draw a supply increase

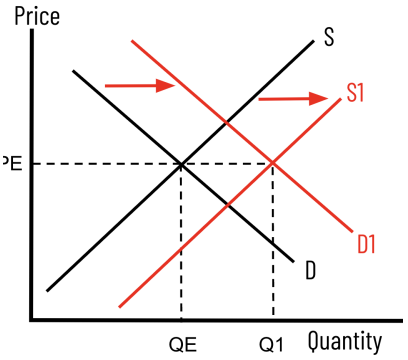


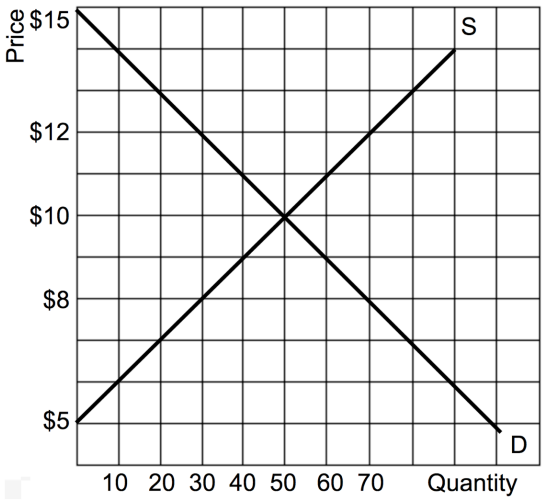
43. Draw a supply decrease



44. What is the double shift rule? When two curves shift at the same time, EITHER price or quantity will be indeterminate.

45. Draw an increase in demand AND an increase in supply. What happens to the equilibrium price and quantity? Price will be indeterminate and quantity will increase





Use the market for pizza to the left to complete the following:

46. Calculate the amount of the shortage when the price is $8. 40 pizzas = 70-30

47. Calculate the amount of the surplus when the price is $11. 20 pizzas = 60-40

48. Identify a specific scenario that would cause the equilibrium price to increase and the equilibrium quantity to decrease. Anything that causes the supply to decrease (e.g. tax on pizzas, increase in cost of cheese, etc.)

49. Identify a specific scenario that would cause the equilibrium price and quantity to decrease. Anything that causes the demand to decrease (e.g. fewer consumers, price decrease of a substitute good, people prefer less pizza, etc.)

50. Explain the difference between a change in demand and a change in quantity demanded. A change in quantity demanded is movement along the curve due to a change in the own-price. A change in demand is when the entire demand curve shifts due to a change in one of the shifters

51. For each scenario, identify the initial change (↑, ↓, or no change) in demand or supply, price, and quantity of electric cars.

Scenario	Demand	Supply	Price	Quantity
Increase in the price of gas-powered cars, a substitute for electric cars	↑	NC	↑	↑
The effect on car manufactures from a significant increase in the price of labor	NC	↓	↑	↓
Decrease in global incomes discourages foreigners from purchasing electric cars	↓	NC	↓	↓
Decrease in the price of robotic technology used to produce electric cars	NC	↑	↓	↑
A decrease in the number of companies manufacturing electric cars	NC	↓	↑	↓

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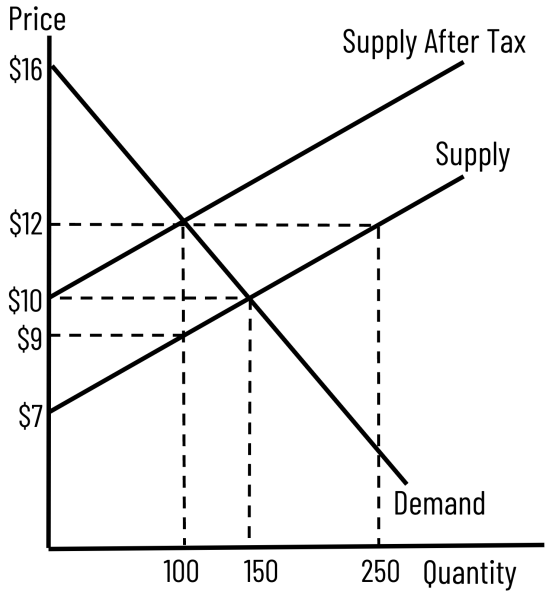
Topic 2.8- Government Intervention

52. What is a price ceiling? Legal cap on prices designed to keep prices artificially low.

53. A binding price ceiling must go below the equilibrium price and results in a shortage .

54. What is a price floor? Minimum legal price sellers can sell a product.

55. A binding price floor must go above the equilibrium price and results in a surplus .



Calculate the following assuming the equilibrium price is $10.

56. Consumer surplus (CS). $450 = ½ (150) x $6
57. Producer surplus (PS). $225 = ½ (150) x $3
58. CS if a price ceiling is placed at $12. $450 (No change. Ceiling isn't binding)
59. CS if a price floor is placed at $12. $200 =½ (100) x $4

Calculate the following after the tax is imposed. Show your work.

60. The tax per unit. $3 per unit = $12-$9
61. CS after tax. $200 =½ (100) x $4
62. PS after tax. $100 =½ (100) x $2
63. Deadweight loss. $75 =½ (50) x $3
64. Total tax revenue. $300 = $3 per unit tax x 100
65. Total spending by buyers. $1,200 = $12 price x 100
66. Total revenue to sellers. $900 = $9 x 100
67. Total amount of tax buyers pay. $200 = $2 x 100
68. Total amount of tax sellers pay. $100 = $1 x 100

69. Is the demand curve between $12 and $10 elastic, inelastic, or unit elastic? Explain. Relatively elastic because the price decreased and the total revenue increased.

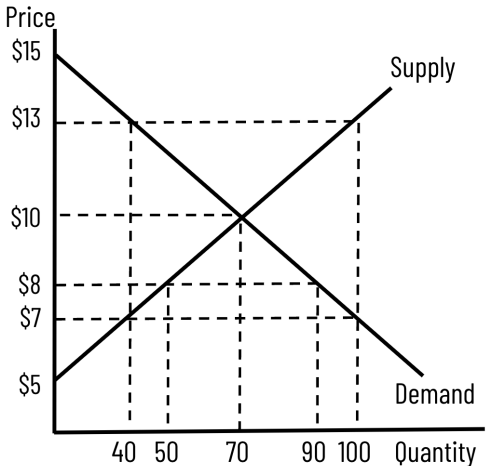
70. Is the supply curve between $12 and $10 elastic, inelastic, or unit elastic? Explain. Relatively elastic. The percent change in quantity (66.6%) is greater than the percent change in price (20%).

71. For each scenario, do buyers or sellers pay more of a tax?

Demand is more inelastic than supply	Buyers
Demand and supply have the same elasticity	Shared burden
Supply is more inelastic than demand	Sellers
Demand is perfectly inelastic	All on buyers
Supply is perfectly inelastic	All on sellers

Topics 2.9- International Trade and Public Policy

The domestic market for rice



Calculate the following at the equilibrium price. Show your work.

72. Consumer surplus. $175 = ½ (70) x $5
73. Producer surplus. $175 = ½ (70) x $5

Calculate the following if this country buys rice from other countries at the world price of $7. Show your work.

74. Quantity produced domestically. 40
75. Quantity imported. 60 = 100 - 40
76. Consumer surplus. $400 = ½ (100) x $8
77. Producer surplus. $40 = ½ (40) x $2

Identify the following if the government places a $1 tariff on rice. Show your work.

78. Consumer surplus. $315 = ½ (90) x $7
79. Tariff revenue. $40 = $1 tariff x 40
80. Deadweight loss. $10 = [½ (10) x $1] + [½ (10) x $1]