

Microeconomics with Calculus, 2e, International Edition (Perloff)

Chapter 2 Supply and Demand

2.1 Demand

1) Suppose the demand for Digital Video Recorders (DVRs) is given by $Q=250 - .25p + 4p_c$, where Q is the quantity of DVRs demanded (in 1000s), p is the price of a DVR, and p_c is the price of cable television. How much does demand for DVRs change if the p rises by \$40?

- A) drops by 10,000 DVRs
- B) increases by 16,000 DVRs
- C) drops by 2,500 DVRs
- D) increases by 4,000 DVRs

3) Suppose the demand for Digital Video Recorders (DVRs) is given by $Q=250 - .25p + 4p_c$, where Q is the quantity of DVRs demanded (in 1000s), p is the price of a DVR, and p_c is the price of cable television. How much of a change in p must occur for Q to increase by one?

- A) fall by 25¢
- B) fall by \$4
- C) increase by 25¢
- D) fall by \$4.25

13) If the price of automobiles were to decrease substantially, the demand curve for automobiles would most likely

- A) shift rightward.
- B) shift leftward.
- C) remain unchanged.
- D) become steeper.

23) During the winter of 1997-1998, the northeastern United States experienced warmer than usual conditions. The price of home heating oil was less than it was during the previous winter, but people bought less home heating oil. This contradicts the Law of Demand.

27) Suppose the demand for a particular product can be expressed as $Q = 100/p$. Calculate the total amount spent on this good when $p = 10, 20,$ and 50 . Can you make a generalization about the mathematical form of this demand curve and consumer behavior in this market?

29) Show that the slope of the market demand curve is the summation of the slopes of individuals' demand curves.

2.2 Supply

1) Suppose the demand curve for a good shifts rightward, causing the equilibrium price to increase. This increase in the price of the good results in

- A) a rightward shift of the supply curve.
- B) an increase in quantity supplied.
- C) a leftward shift of the supply curve.

D) a downward movement along the supply curve.

6) The expression "increase in quantity supplied" is illustrated graphically as a

- A) leftward shift in the supply curve.
- B) rightward shift in the supply curve.
- C) movement up along the supply curve.
- D) movement down along the supply curve.

10) Restricting imports tends to

- A) shift the demand curve for the product to the left.
- B) shift the demand curve for the product to the right.
- C) change the shape of the supply curve.
- D) increase the quantity supplied of a product.

12) Suppose the following information is known about a market:

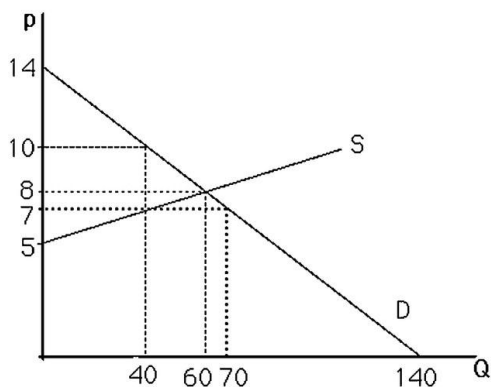
- 1. Sellers will not sell at all below a price of \$2.
- 2. At a price of \$10, any given seller will sell 10 units.
- 3. There are 100 identical sellers in the market.

15) The U.S. is planning on imposing quotas on tires imported from china. Domestic retailers predict this will result in a increase in consumer prices on tires by about \$10. Use a supply and demand graph with brief explanation to show the effects of an import quota. Assume the quota is binding.

2.3 Market Equilibrium

1) Equilibrium is defined as a situation in which

- A) neither buyers nor sellers want to change their behavior.
- B) no government regulations exist.
- C) demand curves are perfectly horizontal.
- D) suppliers will supply any amount that buyers wish to buy.



8) The above figure shows a graph of a market for pizzas in a large town. At a price of \$7, what is the amount of excess demand?

- A) 0; there is excess supply at \$7.
- B) 20 units
- C) 30 units

D) 10 units

13) After tickets for a major sporting event are purchased at the official box office price, a market often develops whereby these tickets sell at prices well above the official box office price. Which of the following scenarios would NOT be able to explain this result?

- A) The official price was below equilibrium from the moment the tickets were available.
- B) Increased publicity causes the demand curve for the event to shift rightward.
- C) The event was not a sellout.
- D) Not everyone who wanted a ticket was able to buy one at the box office.

15) Suppose the market for potatoes can be expressed as follows:

$$\text{Supply: } Q^S = -20 + 10p$$

$$\text{Demand: } Q^D = 400 - 20p$$

Solve for the equilibrium price and quantity.

16) Use supply-and-demand graphs to explain why parking is free at the suburban shopping mall but one typically must pay to park when shopping downtown.

17) Explain why the equilibrium price is called the market clearing price.

2.4 Shocking the Equilibrium: Comparative Statics

1) From the 1970s through the 1990s, the relative price of a college education has increased greatly. During the same time period, college enrollment has also increased. This evidence suggests that during this time period

- A) the demand curve for a college education has shifted leftward.
- B) the demand curve for a college education has shifted rightward.
- C) the supply curve for a college education has shifted leftward.
- D) the supply curve for a college education has shifted rightward.

13) When import restrictions are placed on a good, and as a result the price of the good increases, the demand curve for that good will

- A) shift rightward.
- B) shift leftward.
- C) become steeper.
- D) be unaffected.

14) When two goods are substitutes, a shock that raises the price of one good causes the price of the other good to

- A) remain unchanged.
- B) decrease.
- C) increase.
- D) change in an unpredictable manner.

17) The supply and demand for wheat is given by $Q_S = 200 + .2A + p$ and $Q_D = 500 - p$, where p is the price of wheat and A is the amount of rainfall (inches per year). The effect of an incremental increase in rainfall on equilibrium will be a(n)

- A) decrease the price of wheat by 10¢.

- B) decrease the price of wheat by 20¢.
- C) an increase in the price of wheat by 20¢.
- D) an increase in the price of wheat by 10¢.

18) Suppose the demand for widgets is given by $Q_D = 100 - 5p - p_d + 2I$, where I is average consumer income, p is the price of lemons, and p_d is the price of doodads. According to this equation, doodads are a(n) _____ for widgets.

- A) substitute
- B) complement
- C) input
- D) none of the above

35) Suppose that the supply and demand of wheat depend on the price of wheat (p), the amount of annual rainfall (r), and the level of disposable consumer income (I). The equations describing the supply and demand curves are given by:

$$Q_S = 20r + 100p$$

$$Q_D = 4000 - 100p + 10I$$

Sketch a graph of the supply and demand curves for wheat and show the effects of an increase in the quantity of rainfall. How does each curve shift (if at all) from the increase in rainfall? What does this shift do to the equilibrium price and quantity (increase/decrease)?

41) The supply and demand for wheat are given by

$$Q_S = 20 + 100p$$

$$Q_D = 4000 - 100p + 10Y$$

Where Y is the average consumer income.

- a. Compute the partial derivative of quantity demand with respect to changes in average consumer income.
- b. Solve for the equilibrium price and quantity as functions of the consumer income.
- c. Compute the derivatives of the equilibrium price and quantity with respect to income.

2.5 Elasticities

1) The percentage change in the quantity demanded in response to a percentage change in the price is known as the

- A) slope of the demand curve.
- B) excess demand.
- C) price elasticity of demand.
- D) All of the above.

5) Suppose the demand function for a good is expressed as $Q = 100 - 4p$. If the good currently sells for \$10, then the price elasticity of demand equals

- A) -1.5.
- B) -0.67.
- C) -4.
- D) -2.5.

20) If a consumer doubles her quantity of ice cream consumed when her income rises by 25%, then her income elasticity of demand for ice cream is

- A) 8.0.
- B) 4.0.
- C) .25.
- D) .08.

28) The cross price elasticity of demand between two goods will be positive if

- A) the two goods are complements.
- B) the two goods are substitutes.
- C) the two goods are luxuries.
- D) one of the goods is a luxury and the other is a necessity.

40) If demand is given by $Q=Ap^{-b}$ where A and b are positive constants, the absolute value of price elasticity of demand

- A) $=b$
- B) $=A$
- C) $=A/b$
- D) depends on the price

42) Electricity accounts for almost 20% of the cost of making steel. A 10% increase in electricity prices results in steel firms decreasing production and thereby demanding 5% less electricity. Over many years, technological innovations can change the way steel firms make steel and reduce the industry's energy requirements. This suggests that the steel industry's short-run elasticity of demand for electricity is probably

- A) less than one in absolute terms in the short run.
- B) less than its long-run elasticity of demand for electricity.
- C) Both A and B above.
- D) Neither A nor B above.

49) The demand equation $Q=.5p^{-.75}$ is equivalent to the log-linear demand equations

- A) $Q=\ln(.5)-.75\ln(p)$
- B) $\ln(Q)=\ln(.5)-.75\ln(p)$
- C) $\ln(Q)=.5-.75\ln(p)$
- D) $\ln(Q)=\ln(.75)-.5\ln(p)$

For the following, please answer "True" or "False" and explain why.

50) In the case of a linear demand curve, demand becomes more price elastic as price increases.

67) Suppose the demand for pork is given by the equation

$$Q=p^{-0.5}p_c^{0.2}$$

where p_c is the price of chicken. Compute the cross-price elasticity of demand for pork.

2.6 Effects of a Sales Tax

1) Suppose the supply curve and the demand curve both have unitary elasticity at all prices. The price increase to consumers resulting from a specific tax of \$1 imposed on sellers will be

- A) \$1.
- B) 50 cents.
- C) zero.
- D) impossible to calculate without knowing the slope of the supply curve.

4) Consumers will always pay the entire amount of a specific tax whenever

- A) demand is perfectly inelastic.
- B) supply is perfectly elastic.
- C) Both A and B above.
- D) Either A or B above but not at the same time.

5) If a government wants to maximize revenues from a tax it should

- A) impose it on sellers.
- B) impose it on consumers.
- C) choose a good with a relatively elastic demand.
- D) choose a good with a relatively inelastic demand.

8) Suppose the demand curve is perfectly inelastic and the supply curve is upward sloping. The price sellers receive after a specific tax is imposed on sellers

- A) is less than before the tax.
- B) is higher than before the tax.
- C) is unchanged.
- D) depends on the supply elasticity.

15) The benefit of a subsidy paid on each unit sold will go entirely to the sellers in the market if

- A) the supply curve is perfectly inelastic
- B) if the subsidy is paid to producers
- C) the demand curve is perfectly elastic
- D) the supply is perfectly elastic

25) Suppose that a market has the following supply and demand equations:

$$\text{Demand: } Q^D = 380 - 10p$$

$$\text{Supply: } Q^S = 80 + 5p$$

If the government imposes a specific tax of τ on suppliers, what will be the price buyers pay and sellers receive, quantity, and government revenue from the tax (as functions of τ). What tax level maximizes the revenue the government collects from the tax?

2.7 Quantity Supplied Need Not Equal Quantity Demanded

1) Municipalities that have adopted the policy of "rent control" typically set the rentals on certain apartments well below equilibrium. As a result,

- A) landlords have a difficult time finding tenants.
- B) prospective tenants have a difficult time finding available apartments.
- C) there is a surplus of apartments.

D) All of the above.

2) When "rent controls" result in a shortage of housing, landlords

A) use criteria other than price to allocate housing.

B) lower the price to allocate the housing.

C) attempt to attract renters.

D) None of the above.

6) In the labor market, if the government imposes a minimum wage that is below the equilibrium wage, then:

A) workers who wish to work at the minimum wage will have a difficult time finding jobs.

B) firms will hire fewer workers than without the minimum wage law.

C) some workers may lose their jobs as a result.

D) nothing will happen to the wage rate or employment.

7) Suppose the market for potatoes can be expressed as follows:

$$\text{Supply: } Q^S = -20 + 10p$$

$$\text{Demand: } Q^D = 400 - 20p$$

If the government sets a maximum price of \$10 per unit, what will be the quantity demanded and quantity supplied?

2.8 When to Use the Supply-and-Demand Model

1) It is appropriate to use the supply-and demand-model if, in a market,

A) everyone is a price taker with full information about the price and quality of the good.

B) firms sell identical products.

C) costs of trading are low.

D) All of the above.

Answer: D

Topic: When to Use the Supply-and-Demand Model

2) Consumers and firms are known as price takers only if

A) no market exists to determine the equilibrium price.

B) they can set the market price.

C) they cannot affect the market price.

D) excess demand exists.

Answer: C

Topic: When to Use the Supply-and-Demand Model

3) Costs that pertain to finding a trading partner and making a trade are called

A) transaction costs.

B) transgression costs.

C) consumption costs.

D) transaction taxes.

4) It is appropriate to use the supply-and-demand model in which of the following markets?

A) beer market

B) car market

- C) wheat market
- D) market for breakfast cereal

For the following, please answer "True" or "False" and explain why.

- 5) The supply-and-demand model may not be appropriate in markets with large transaction costs.
- 6) Explain why the supply-and-demand model should not be used to analyze the market for jeans.