

Name: \_\_\_\_\_

**Cosumnes River College**  
**Principles of Microeconomics**  
**Problem Set 2**  
**Due February 5, 2015**

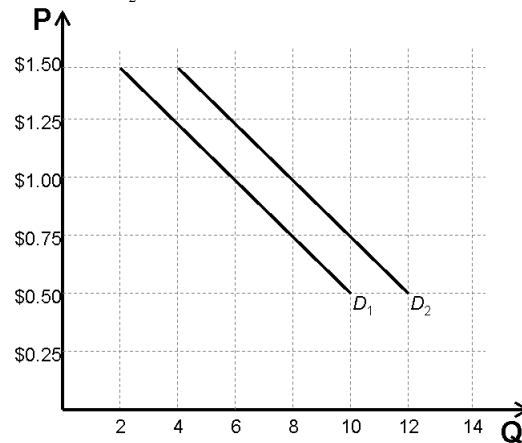
Spring 2015

Prof. Dowell

**Instructions: Write the answers clearly and concisely on these sheets in the spaces provided. Do not attach additional sheets.**

1. Draw a *demand curve* from the following demand table on the axes below. Label it  $D_1$ . Then suppose the demander gets an increase in income and decides to buy 2 more bars at every price level. Draw this change on your demand curve. Label it  $D_2$ .

| Price per candy bar | Candy bars purchased each week |
|---------------------|--------------------------------|
| \$0.50              | 10                             |
| 0.75                | 8                              |
| 1.00                | 6                              |
| 1.25                | 4                              |
| 1.50                | 2                              |



2. Fill in the blanks in the following sentences:
- If the price of a good or service falls, the quantity demanded increases.
  - The quantity of a good or service purchased at each price is given by the demand curve.
  - The quantity of a good or service offered for sale at each price is given by the supply curve.
  - The laws of supply and demand say that at the equilibrium price the quantity demanded equals the quantity supplied.
  - An increase in the price of a good leads to a movement along its demand curve.
  - A change in technology leads to a shift of the supply curve.
  - In an economic equilibrium, there are no forces for change.
  - The statement that market supply equals market demand is an example of an equilibrium relationship.

3. Indicate whether each of the following statements describes an increase in demand, decrease in demand, change in quantity demanded, increase in supply, decrease in supply, or change in quantity supplied in the given market.

- a. Store-brand soup prices are cut, reducing sales of Campbell's soup. Market: Campbell's soup.

*Change (decrease) in demand*

- b. Coffee bean prices hit an 18-month low following a bountiful harvest. Market: coffee beans.

*Change (increase) in supply*

- c. A summer heat wave leads to higher prices for bottled water. Market: bottled water.

*Change (increase) in demand*

- d. Holiday clothing discounts boost clothing sales. Market: clothing.

*Change (increase) in quantity demanded*

- e. Apple introduces a tinier and more powerful iPod model. Market: older iPod models.

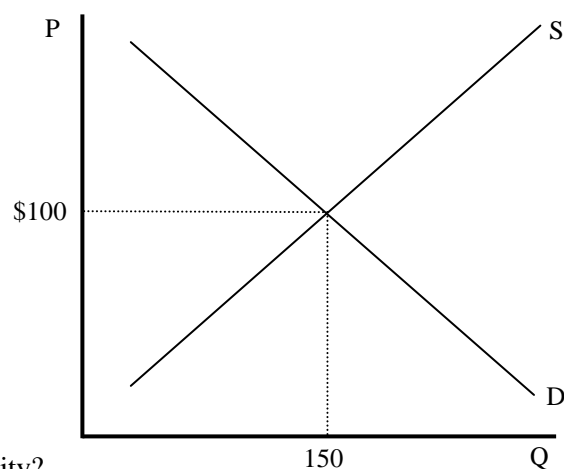
*Change (decrease) in demand*

- f. The cost of pesticides increases, leading to a rise in the price of soy beans. Market: soy beans.

*Change (decrease) in supply*

2. Use the information in the table below to draw the supply and demand curves for color printers: (Be sure to clearly label the axes.)

| Price | Quantity Demanded | Quantity Supplied |
|-------|-------------------|-------------------|
| \$50  | 200               | 50                |
| \$100 | 150               | 150               |
| \$150 | 100               | 250               |
| \$200 | 50                | 350               |

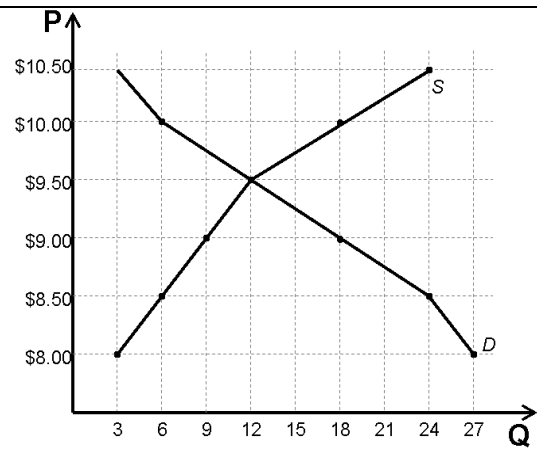


- a. What is the equilibrium price and quantity?  
 *$P = \$100, Q = 150$*
- b. If the price were \$150.00, would there be a shortage or a surplus? How big would it be?  
*A surplus of 150 because at a price of \$150,  $Q^S = 250$  while  $Q^D = 100$ .*
- c. Explain why a price of \$150 can't be an equilibrium. (What would happen if the price were \$150?)

*A price of \$150 can't be an equilibrium because at this price  $Q^S > Q^D$ . Suppliers will reduce prices to clear the market. Quantity supplied will decrease while quantity demanded will increase.*

5. State the effect of the following events on equilibrium price and quantity of the market given.
- Beetle infestation decimates tobacco crop. Market: cigars.  
*This reduces supply so equilibrium price rises, and equilibrium quantity declines.*
  - The Organization for Petroleum Export Countries raises oil export quotas. Market: gasoline.  
*This increases supply so equilibrium price falls, and equilibrium quantity increases.*
  - Digital image albums become the rage among households while improved technology reduces the cost of producing digital cameras. Market: digital cameras.  
*This increases both demand and supply so equilibrium quantity increases while the effect on price is uncertain.*
  - Hurricanes in the Gulf coast cause gasoline supply disruptions while the summer travel season ends. Market: gasoline.  
*This decreases both demand and supply so equilibrium quantity decreases while the effect on price is uncertain.*
6. Given the following data for individuals, draw the market demand curve and market supply curve for CDs. Assume that these are the only individuals in the entire market. Price is per CD.

| Price                                      | \$8.00 | \$8.50 | \$9.00 | \$9.50 | \$10.00 | \$10.50 |
|--|--------|--------|--------|--------|---------|---------|
| <b>Quantity demanded in units per week</b> |        |        |        |        |         |         |
| Mark                                       | 3      | 3      | 1      | 0      | 0       | 0       |
| Lynn                                       | 8      | 7      | 6      | 3      | 2       | 1       |
| Jason                                      | 6      | 5      | 4      | 3      | 0       | 0       |
| Erin                                       | 10     | 9      | 7      | 6      | 4       | 2       |
| <b>Quantity supplied in units per week</b> |        |        |        |        |         |         |
| Jeff                                       | 0      | 1      | 2      | 3      | 4       | 6       |
| Beth                                       | 2      | 3      | 3      | 4      | 6       | 7       |
| Chris                                      | 0      | 1      | 2      | 3      | 5       | 6       |
| Abby                                       | 1      | 1      | 2      | 2      | 3       | 5       |



- What would be the equilibrium price and quantity in this market?  
*Equilibrium price is \$9.50 and equilibrium quantity is 12 CDs.*
- Which would there be—excess demand or excess supply—at a price of \$8.00? How much? What about at a price of \$10.00?  
*At a price of \$8.00, there would be excess demand of 24 CDs; at a price of \$10.00, there would be excess supply of 12 CDs.*
- If the price of a CD was initially set at \$9.00 but the price was allowed to adjust, would the price rise or fall? Explain your answer.  
*If the price were \$9.00, there would be pressure on the price to rise because of the excess demand.*

7. The demand and supply curves for hotdogs in Sacramento are given by the following two equations:

$$Q^D = 8,000 - 800P$$

$$Q^S = 2,000 + 200P,$$

where  $P$  is the price measured in dollars and  $Q^D$  is the number of hotdogs demanded and  $Q^S$  is the number of hotdogs supplied.

- a. Find the equilibrium price and quantity.

*To solve, set  $Q^D$  equal to  $Q^S$  and solve for  $P$ .*

$$8,000 - 800P = 2,000 + 200P$$

$$6,000 = 1,000P$$

$$P = 6$$

*Now, plug the value of  $P$  back in and solve for quantity.*

$$Q^D = 8,000 - 800(6) = 3,200$$

$$Q^S = 2,000 + 200(6) = 3,200$$

- b. If students suddenly acquire a greater taste for hotdogs, which of the following might be the new demand curve? Circle it.

$$Q^D = 6,500 - 800P$$

$$Q^D = 9,500 - 800P$$

*This is an increase in demand. We want the demand curve with the larger intercept.*

Find the equilibrium price and quantity after the shift of the demand curve.

*Again, to solve, set  $Q^D$  equal to  $Q^S$  and solve for  $P$ .*

$$P = 7.50$$

*Now, plug the value of  $P$  back in and solve for quantity.*

$$Q^D = Q^S = 3,500$$

- c. If instead one of the stores selling hotdogs goes out of business, which of the following might be the new supply curve? Circle it.

$$Q^S = 1200 + 200P$$

$$Q^S = 2800 + 200P$$

*This reduces supply so we want the supply curve with the smaller intercept.*

Find the equilibrium price and quantity after the shift of the supply curve.

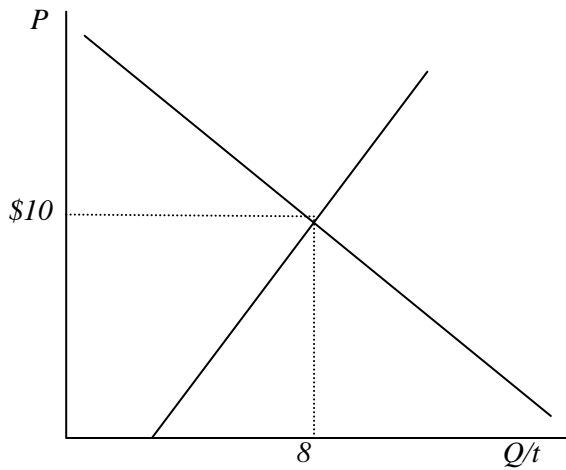
*Again, to solve, set  $Q^D$  (from part a) equal to new  $Q^S$  and solve for  $P$ .*

$$P = 6.80$$

*Now, plug the value of  $P$  back in and solve for quantity.*

$$Q^D = Q^S = 2,560$$

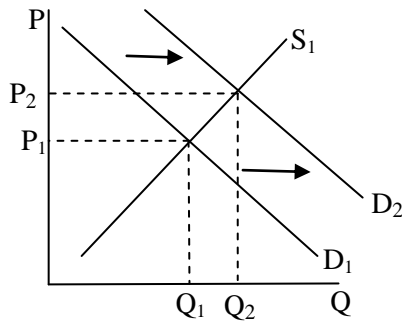
8. Suppose the market demand and supply curves for mead are given by the equations  $Q_D = 38 - 3P$  and  $Q_S = P - 2$ . Solve for the equilibrium price and quantity. Represent the equilibrium on the axes below using a properly labeled supply and demand diagram.



$$\begin{aligned} \text{Set } Q_D &= Q_S = P - 2. \\ 38 - 3P &= P - 2 \\ 40 &= 4P \\ P &= 10 \Rightarrow Q_D = 8 \text{ and } Q_S = 8 \end{aligned}$$

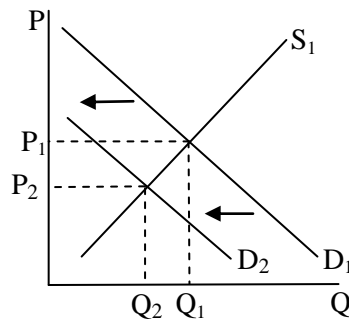
- For each of the following events, show the resulting shift in the supply and or demand curve and label the new equilibrium quantity as  $Q_2$  and the new equilibrium price  $P_2$ . Also, in words, and using the terminology discussed in class, describe what happens.

- a. an increase in the income in the market for a normal good



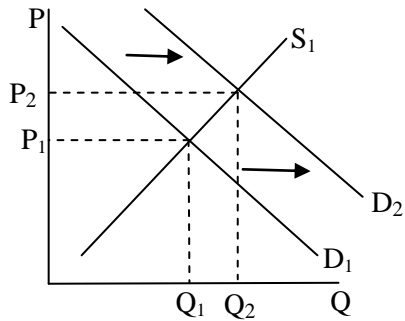
*Demand and quantity supplied both increase. Equilibrium quantity and price also both increase.*

- b. a decrease in the income in the market for a normal good



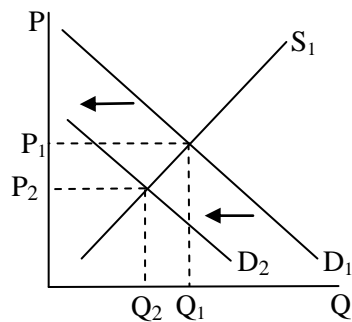
*Demand and quantity supplied both decrease. Equilibrium quantity and price also both decrease.*

c. an increase in the price of a substitute



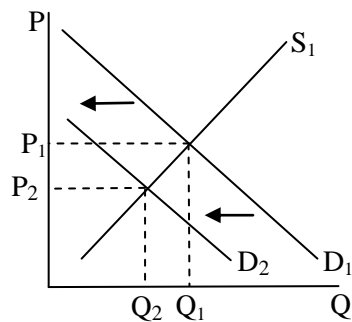
*Demand and quantity supplied both increase. Equilibrium quantity and price also both increase.*

d. a decrease in the price of a substitute



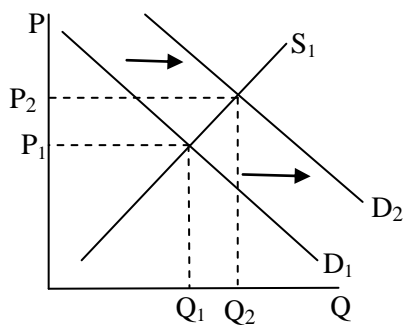
*Demand and quantity supplied both decrease. Equilibrium quantity and price also both decrease.*

e. an increase in the price of a complement



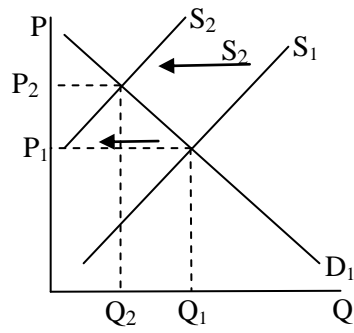
*Demand and quantity supplied both decrease. Equilibrium quantity and price also both decrease.*

f. a decrease in the price of a complement



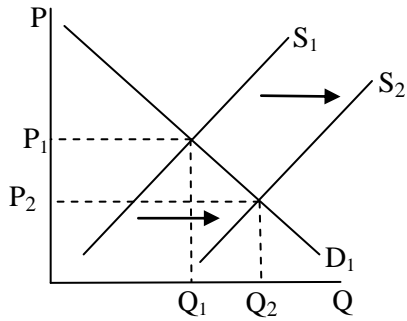
*Demand and quantity supplied both increase. Equilibrium quantity and price also both increase.*

g. an increase in the price of an input



*Supply and quantity demanded both decrease. Equilibrium quantity decreases and equilibrium price increases.*

h. a decrease in the price of an input



*Supply and quantity demanded both increase. Equilibrium quantity increases and equilibrium price decreases.*