

Microeconomics 1021A

Chapter 3: Demand and Supply

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September 25, 2020

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- ▶ Problems 20, 21, 22, 23 (p.86)

Key points

- ▶ **Competitive market**
- ▶ **Demand**, law of demand
- ▶ **Supply**, law of supply
- ▶ Market **equilibrium**
- ▶ When do we have **Surplus**?
- ▶ **Shortage**?

Custom problem 1

The y-intercept of a supply curve is 4. The slope is 2.

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1. What is the equation of the supply curve?
2. Suppose that $Q_S = 5$. What is P ?
3. Suppose that $P = \$12$. What is Q_S ?

Custom problem 1

1. $P = a + bQ_S$

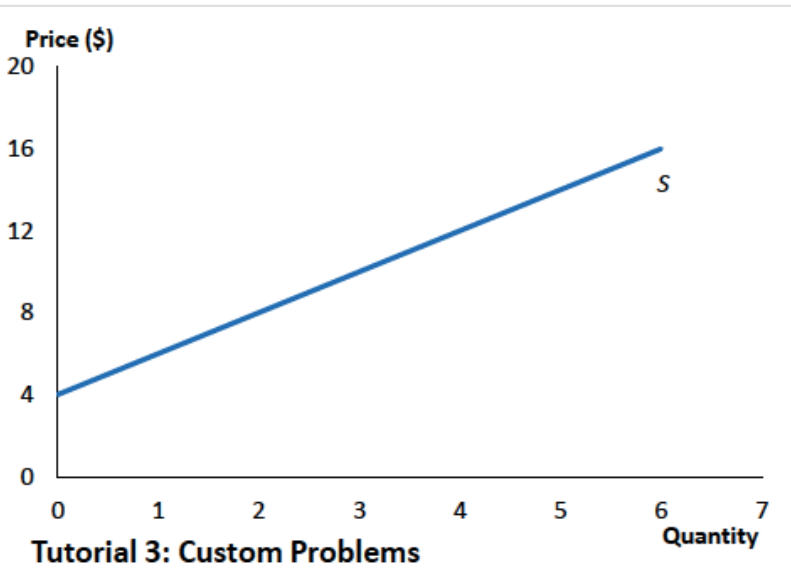
$$a = 4, b = 2$$

$$\implies P = 4 + 2Q_S$$

2. $Q_S = 5$

$$\implies P = 4 + 2(5) = 14$$

3. $(12) = 2 + Q_S \implies Q_S = 4$



Custom problem 2

The y-intercept of a demand curve is 16. The slope is -4.

1. What is the equation of the demand curve?

Custom problem 2

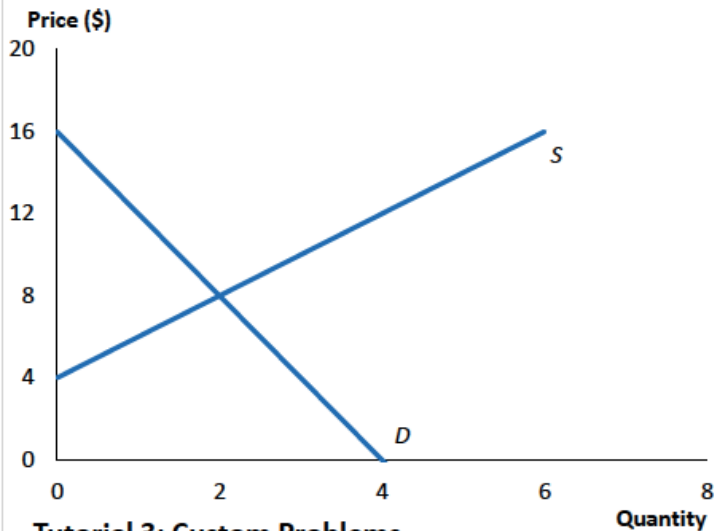
The y-intercept of a demand curve is 16. The slope is -4.

1. What is the equation of the demand curve?
2. Suppose that $Q_D = 3$. What is P ?

Custom problem 2

The y-intercept of a demand curve is 16. The slope is -4.

1. What is the equation of the demand curve?
2. Suppose that $Q_D = 3$. What is P ?
3. Suppose that $P = \$12$. What is Q_D ?



Tutorial 3: Custom Problems

Custom problem 3

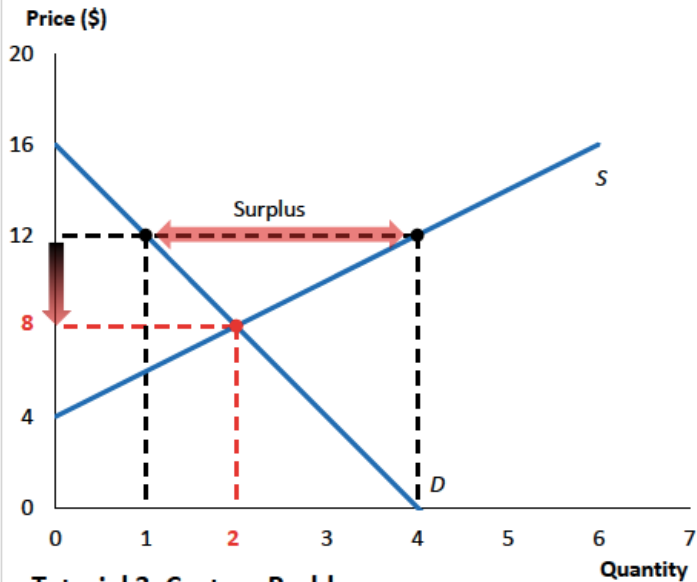
Use your answers from Custom Problems 1 and 2 to answer the following questions.

1. Suppose the price of the good is \$12. Is there a shortage or a surplus, and how does the price adjust?

Custom problem 3

Use your answers from Custom Problems 1 and 2 to answer the following questions.

1. Suppose the price of the good is \$12. Is there a shortage or a surplus, and how does the price adjust?
2. Find the equilibrium price and the equilibrium quantity in this market.



Tutorial 3: Custom Problems

Problem 3.20

1. Draw a graph of the potato chip market and mark in the equilibrium price and quantity.

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1. Draw a graph of the potato chip market and mark in the equilibrium price and quantity.
2. If the price is 60 cents a bag, is there a shortage or a surplus, and how does the price adjust?

Price (cents per bag)	Quantity Demanded (millions of bags per week)	Quantity Supplied
50	160	130
60	150	140
70	140	150
80	130	160
90	120	170
100	110	180

Figure 1: Demand and supply schedules for potato chips

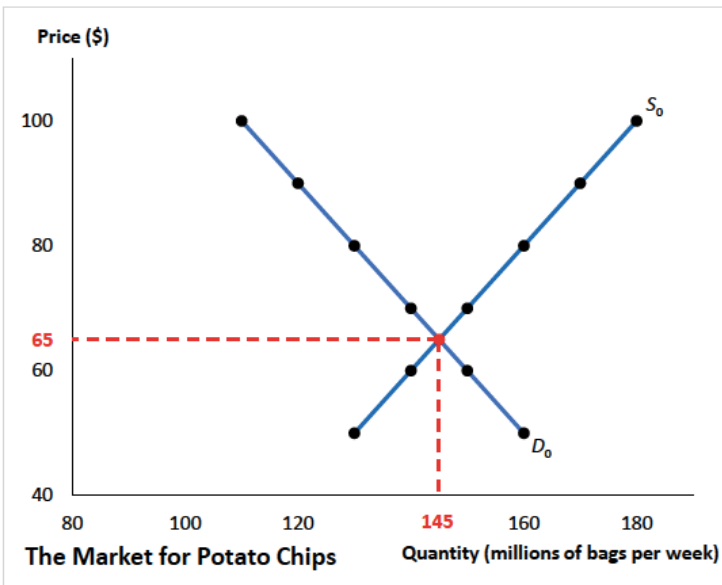


Figure 2: Potato chips equilibrium

Problem 3.21

In Problem 3.20, a new dip increases the quantity of potato chips that people want to buy by 30 million bags per week at each price.

1. Does the demand for chips change? Does the supply of chips change? Describe the change.

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In Problem 3.20, a new dip increases the quantity of potato chips that people want to buy by 30 million bags per week at each price.

1. Does the demand for chips change? Does the supply of chips change? Describe the change.
2. How do the equilibrium price and equilibrium quantity of chips change?

Price (cents per bag)	Quantity Demanded	Quantity Supplied	<i>New Quantity Demanded</i>
(millions of bags per week)			
50	160	130	190
60	150	140	180
70	140	150	170
80	130	160	160
90	120	170	150
100	110	180	140

Figure 3: Problem 3.21

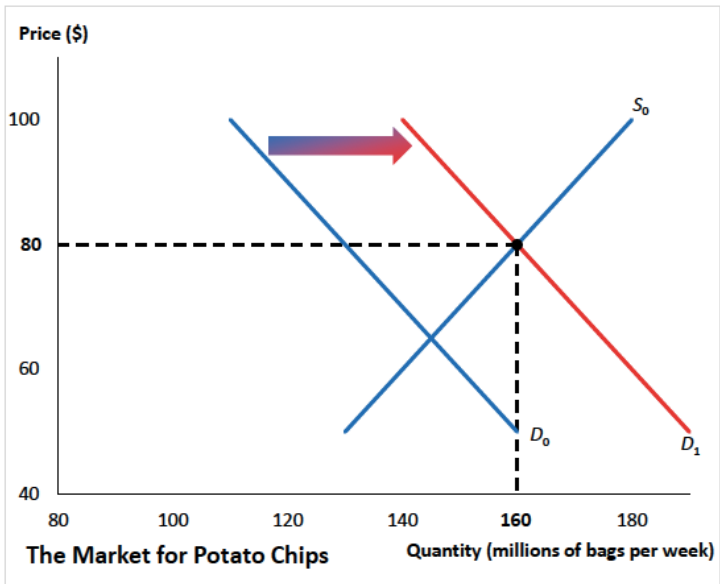


Figure 4: Problem 3.21

Problem 3.22

In Problem 3.20, if a virus destroys potato crops and the quantity of potato chips produced decreases by 40 million bags a week at each price, how does the supply of chips change?

Price (cents per bag)	Quantity Demanded	Quantity Supplied	<i>New Quantity Supplied</i>
	(millions of bags per week)		
50	160	130	90
60	150	140	100
70	140	150	110
80	130	160	120
90	120	170	130
100	110	180	140

Figure 5: Problem 3.22

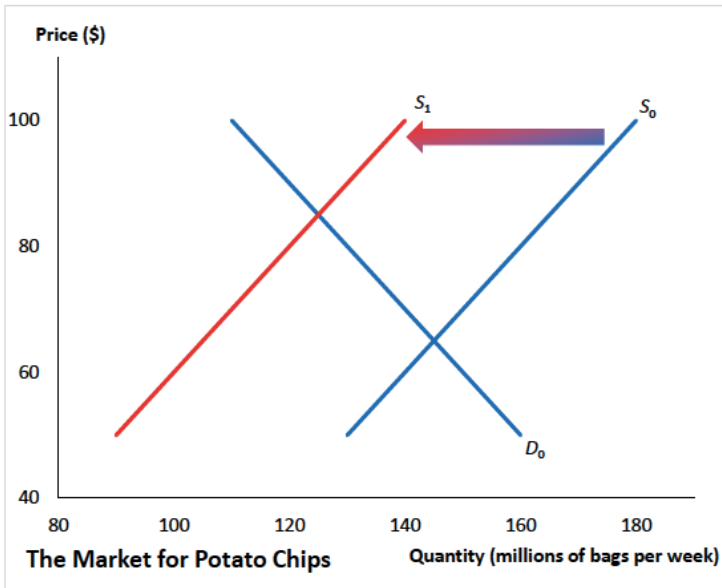


Figure 6: Problem 3.22

Problem 3.23

If the virus in Problem 3.22 hits just as the new dip in Problem 3.21 comes onto the market, how do the equilibrium price and equilibrium quantity of chips change?

Price (cents per bag)	Quantity Demanded	Quantity Supplied	<i>New Quantity Demanded</i>	<i>New Quantity Supplied</i>
(millions of bags per week)				
50	160	130	190	90
60	150	140	180	100
70	140	150	170	110
80	130	160	160	120
90	120	170	150	130
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Figure 7: Problem 3.23

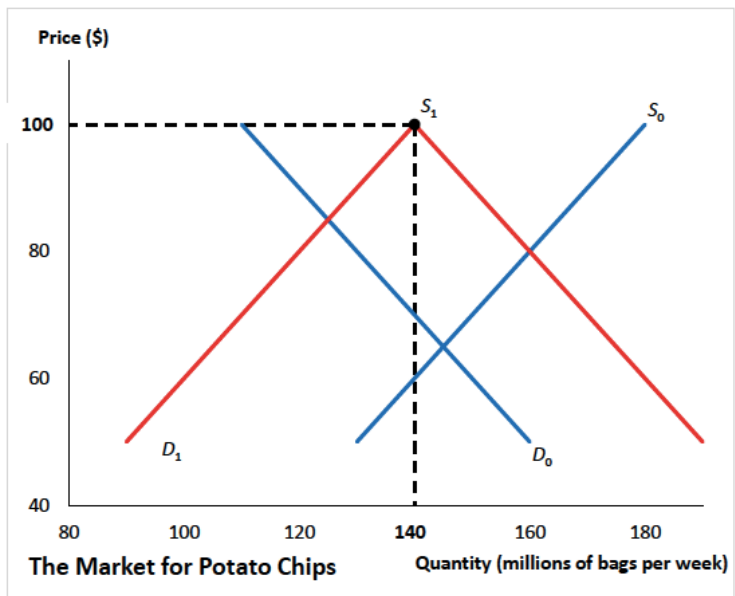


Figure 8: Problem 3.23

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- ▶ Equilibrium: $Q_S = Q_D$
- ▶ If $P > P_E \implies Q_S > Q_D \implies$ Surplus
- ▶ If $P < P_E \implies Q_S < Q_D \implies$ Shortage