PROBLEMS FOR CHAPTER 1

Name: ______________________

LO1-1 1. According to Table 1.1 (or Figure 1.1), what is the opportunity cost of the fourth truck? ________

LO1-2 2. (*a*) Compute the opportunity cost in forgone tanks for each additional truck produced:

Truck output	0	1	2	3	4	5
Tank output	5	4.5	3.8	3.0	2.0	0
Opportunity cost	___	___	___	0.8	___	___

(*b*) As truck output increases, are opportunity costs (A) increasing, (B) decreasing, or (C) remaining constant? ________

LO1-2 3. According to Figure 1.2 (p. 9), what is the opportunity cost of North Korea moving from point *P* to point *N* (in terms of food output)? ________

LO1-1 4. (*a*) What is the cost of the North Korean 2009 missile launch, according to South Korea (p. 10)? ________

(*b*) How many people could have been fed for an entire year at the World Bank standard of $2 per day with that money? ________

LO1-1 5. What is the opportunity cost (in civilian output) of a defense buildup that raises military spending from 4.3 to 4.7 percent of a $15 trillion economy? ________

LO1-3 6. What are the three core economic questions societies must answer?

______________________ ______________________ ______________________

LO1-2 7. According to Figure 1.4 (reproduced below),

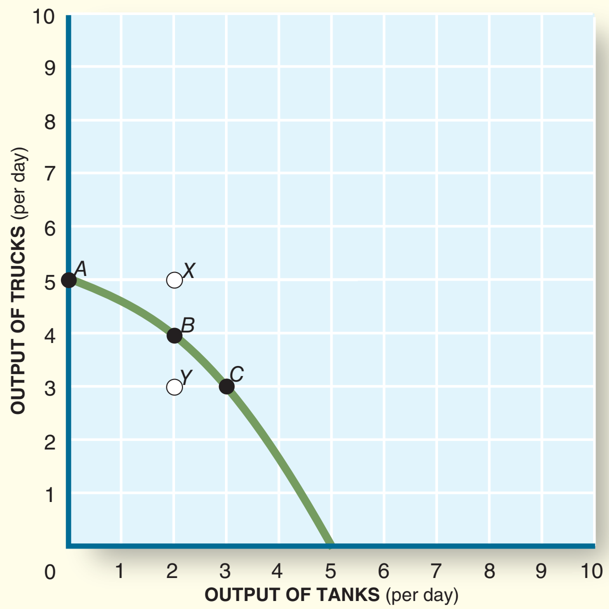
(*a*) At which point(s) is this society producing some of each type of output but still producing inefficiently? ________

(*b*) At which point(s) is this society producing the most output possible with the available resources and technology? ________

(*c*) At which point(s) is the output combination currently unattainable with current available resources and technology? ________

(*d*) Show the change that would occur if the population of this society increased dramatically. Label this curve PPC2.

(*e*) Show the change that would occur with a huge natural disaster that destroyed vast amounts of infrastructure. Label this curve PPC3.



PROBLEMS FOR CHAPTER 1 (Cont'd)

Name: ______________________

LO1-2 8. Suppose either computers or televisions can be assembled with the following labor inputs:

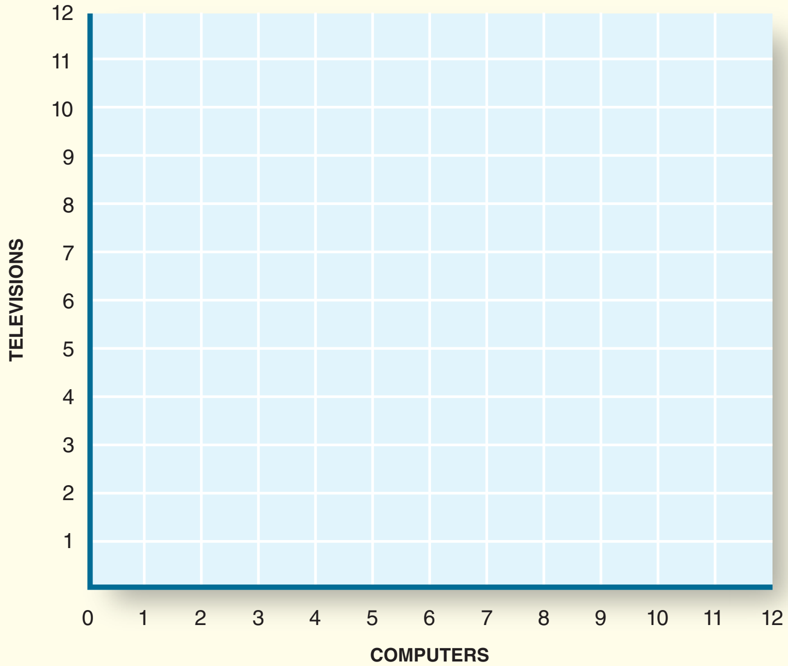
Units produced	1	2	3	4	5	6	7	8	9	10
Total labor used	3	7	12	15	25	33	42	54	70	90

(*a*) Draw the production possibilities curve for an economy with 54 units of labor. Label it P54.

(*b*) What is the opportunity cost of the eighth computer? ________

(*c*) Suppose immigration brings in 36 more workers. Redraw the production possibilities curve to reflect this added labor. Label the new curve P90.

(*d*) Suppose advancing technology (e.g., the miniaturization of electronic circuits) increases the productivity of the 90-laborer workforce by 20 percent. Draw a third production possibilities curve (PT) to illustrate this change.



LO1-4 9. According to the World View on page 15, which nation has

(*a*) The highest level of faith in the market system? ________

(*b*) The lowest level of faith in the market system? ________

LO1-1 10. If a person literally had "nothing else to do,"

(*a*) What would be the opportunity cost of doing these problems? ________

(*b*) What is the likelihood of that? ________

 Name: ______________________

LO1-2 11. Suppose there's a relationship of the following sort between study time and grades:

	(a)	(b)	(c)	(d)	(e)
Study time (hours per week)	0	2	6	12	20
Grade point average	0	1.0	2.0	3.0	4.0

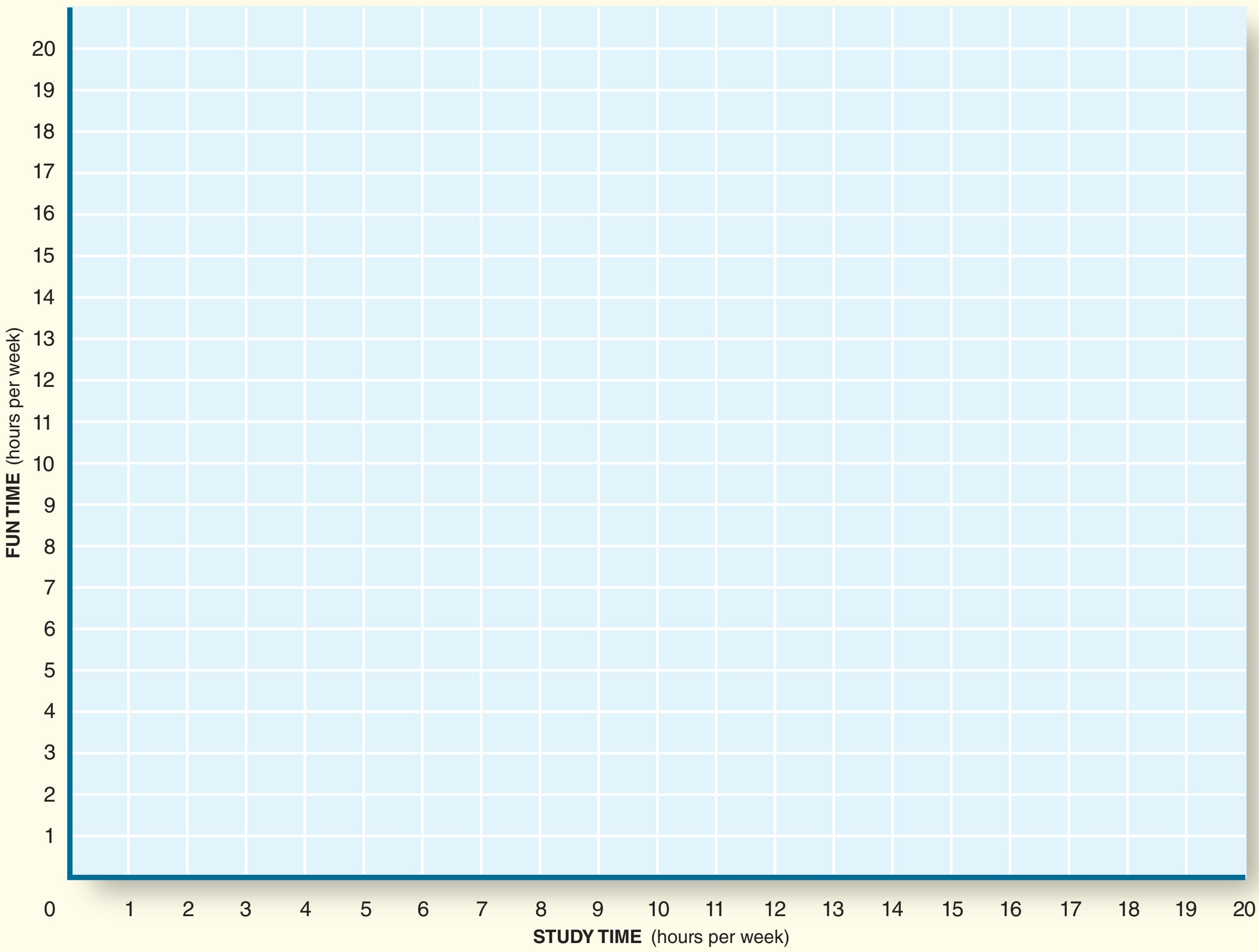
If you have only 20 hours per week to use for either study time or fun time,

(*a*) Draw the (linear) production possibilities curve on the graph below that represents the alternative uses of your time.

(*b*) Indicate on the graph the point *C* that would get you a 2.0 grade average.

(*c*) What is the cost, in lost fun time, of raising your grade point average from 2.0 to 3.0? Illustrate this effort on the graph (point *C* to point *D*). ________

(*d*) What is the opportunity cost of increasing your grade point average from 3.0 to 4.0? Illustrate as point *D* to point *E*. ________



PROBLEMS FOR CHAPTER 2

Name: ______________________________

LO2-1 1. In 2010 the world's total output (real GDP) was roughly \$75 trillion. What percent of this total was produced

(*a*) By the three largest economies (World View, p. 31)? ________%

(*b*) By the three smallest economies in that World View? ________%

(*c*) How much larger is the U.S. economy than the Saudi economy? ________ (times larger)

LO2-1 2. According to the World View on page 32, what percentage of America's GDP per capita is available to the average citizen of

(*a*) Mexico? ________%

(*b*) China? ________%

(*c*) Haiti? ________%

LO2-3 3. (*a*) How much more output does the \$15 trillion U.S. economy produce when GDP increases by 1.0 percent? \$ ________

(*b*) By how much does this increase the average (per capita) income if the population is 300 million? \$ ________

LO2-1 4. According to Table 2.1 (p. 34), how fast does total output (GDP) have to grow in order to raise per capita GDP in

(*a*) China? ________

(*b*) Ethiopia? ________

LO2-3 5. (*a*) If Haiti's per capita GDP of roughly \$1,150 were to DOUBLE every decade (an annual growth rate of 7.2 percent), what would Haiti's per capita GDP be in 50 years? \$ ________

(*b*) What is U.S. per capita GDP in 2010 (World View, p. 32)? \$ ________

LO2-2 6. U.S. real gross domestic product increased from \$10 trillion in 2000 to \$15 trillion in 2010. During that same decade the share of manufactured goods (e.g., cars, appliances) fell from 16 percent to 12 percent. What was the dollar value of manufactured output

(*a*) In 2000? \$________

(*b*) In 2010? \$________

(*c*) By how much did manufacturing output change? ________%

LO2-4 7. Using the data in Figure 2.3,

(*a*) Compute the average income of U.S. households. \$________

(*b*) If all incomes were equalized by government taxes and transfer payments, how much would the average household in each income quintile gain (via transfers) or lose (via taxes)?

(*i*) Highest fifth \$________

(*ii*) Second fifth \$________

(*iii*) Third fifth \$________

(*iv*) Fourth fifth \$________

(*v*) Lowest fifth \$________

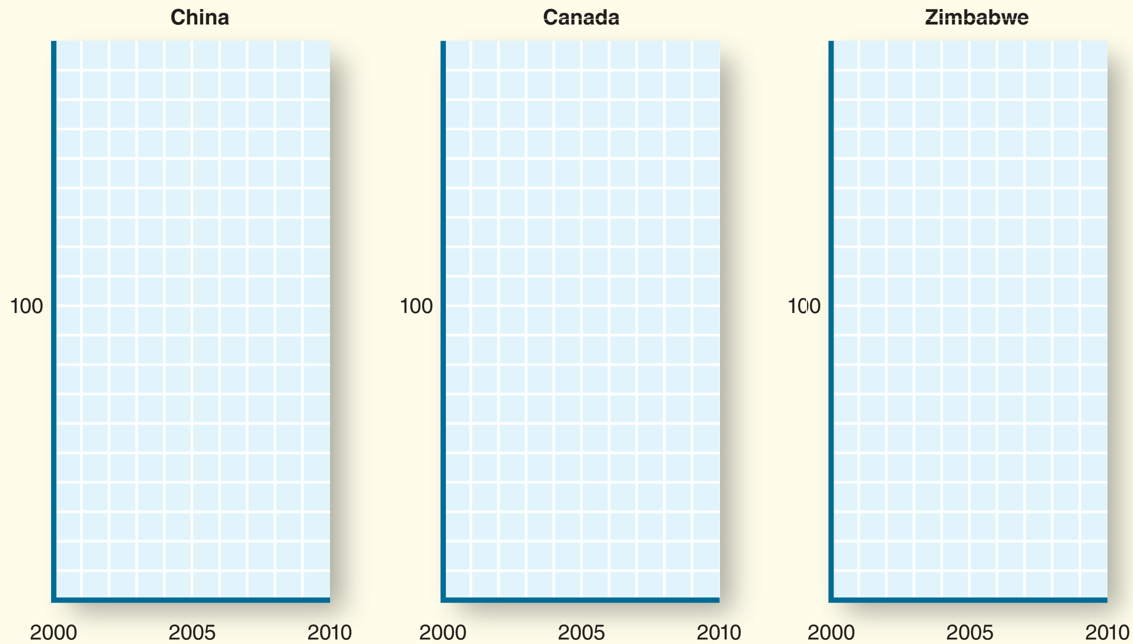
(*c*) What is the implied tax rate (i.e., tax ÷ average income) on the highest quintile? ________%

LO2-3 8. If 150 million workers produced America's GDP in 2010 (World View, p. 31), how much output did the average worker produce? \$________

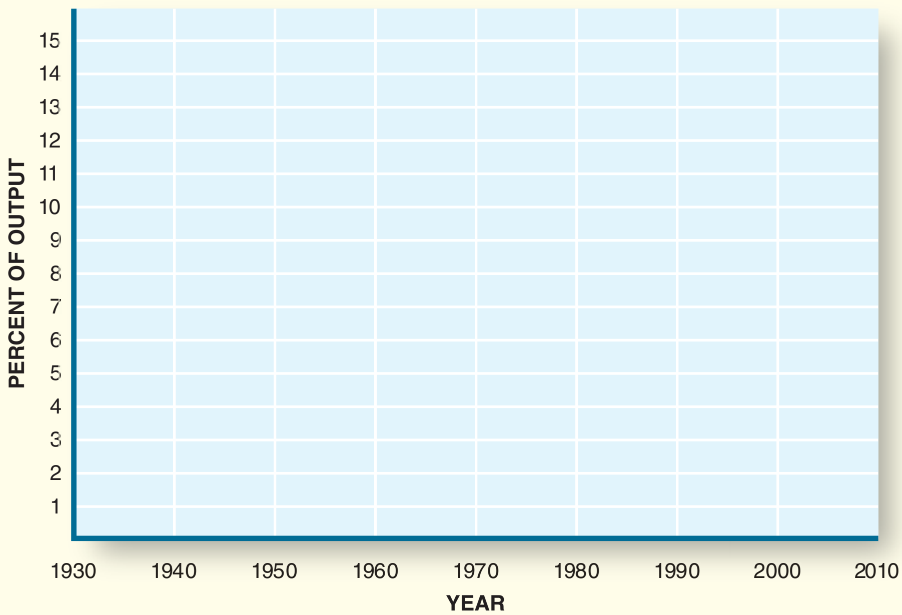
LO2-4 9. How much more output (income) per year will have to be produced in the world just to provide the 2.7 billion "severely" poor population with \$1 more output per day? \$________

 Name: ______________________________

LO2-1 10. Using data from Table 2.1 (p. 34), illustrate on the following graphs real GDP and population growth since 2000 (in the manner of Figure 2.1) for the nations indicated.



LO2-1 11. Using data from the endpapers, illustrate on the graph below
(*a*) The federal government's share of the total output.
(*b*) The state/local government's share of the total output.



PROBLEMS FOR CHAPTER 3

Name: ____________________

LO3-1 1. According to Figure 3.3, at what price would Tom buy 12 hours of web tutoring?
(*a*) Without a lottery win. ________
(*b*) With a lottery win. ________

LO3-3 2. According to Figures 3.5 and 3.6, what would the new equilibrium price of tutoring services be if Ann decided to stop tutoring? ________

LO3-3 3. According to the News on page 61
(*a*) What was the initial price of a Final Four ticket? ________
(*b*) At that price was there (A) an equilibrium, (B) a shortage, or (C) a surplus? ________

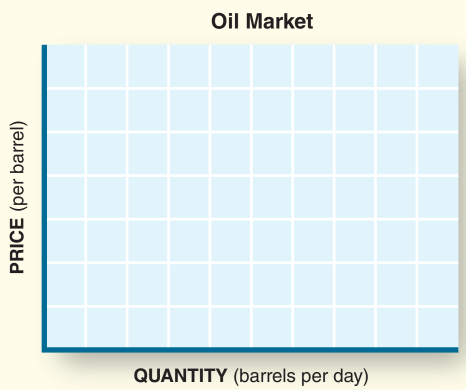
LO3-3 4. Given the following data on gasoline supply and demand,
(*a*) What is the equilibrium price? ________
(*b*) How large a market shortage would exist if government set a price ceiling of $2 per gallon? ________

Price per gallon	$5.00	$4.00	$3.00	$2.00	$1.00
Quantity demanded (gallons per day)					
Al	1	2	3	4	5
Betsy	0	1	1	1	2
Casey	2	2	3	3	4
Daisy	1	3	4	4	6
Eddie	1	2	2	3	5
Market total	__	__	__	__	__

	$5.00	$4.00	$3.00	$2.00	$1.00
Quantity supplied (gallons per day)					
Firm A	3	3	2	2	1
Firm B	7	5	3	3	2
Firm C	6	4	3	3	1
Firm D	6	5	3	2	0
Firm E	4	2	2	2	1
Market total	__	__	__	__	__

LO3-2 5. As a result of the BP oil spill (News, p. 58), which of the following changed in the shrimp market (answer yes or no):
(*a*) Demand? ________
(*b*) Quantity demanded? ________
(*c*) Price? ________

LO3-4 6. Illustrate what's happening to oil prices in the World View on page 63.



(*a*) Which direction did the demand curve shift (left or right)? ________
(*b*) Which direction did the supply curve shift (left or right)? ________
(*c*) Did price (A) increase or (B) decrease? ________

LO3-5 7. According to Figure 3.8,
(*a*) How many people die in the market-driven economy? ________
(*b*) How many people die in the government-regulated economy? ________

LO3-5 8. According to Figure 3.8,
(*a*) How many organs are supplied at a zero price? ________
(*b*) If the News on page 66 is correct, how many organs would be supplied at positive prices? ________

LO3-1 9. The goal of the price cut described in the News on page 51, was to (select one—enter letter) ________
(*A*) Increase supply.
(*B*) Increase quantity supplied.
(*C*) Increase demand.
(*D*) Increase quantity demanded.

PROBLEMS FOR CHAPTER 3 (cont'd)

Name: ______________________________

LO3-5 10. In Figure 3.8, when a price ceiling of zero is imposed on the organ market, by how much does

(*a*) The quantity of organs demanded increase? __________

(*b*) The demand increase? __________

(*c*) The quantity of organs supplied decrease? __________

(*d*) The supply decrease? __________

LO3-5 11. Use the following data to draw supply and demand curves on the accompanying graph.

Price	$ 8	7	6	5	4	3	2	1
Quantity demanded	2	3	4	5	6	7	8	9
Quantity supplied	10	9	8	7	6	5	4	3

(*a*) What is the equilibrium price? __________

(*b*) If a *minimum* price (price floor) of $6 is set,

(*i*) What kind of disequilibrium situation results? __________

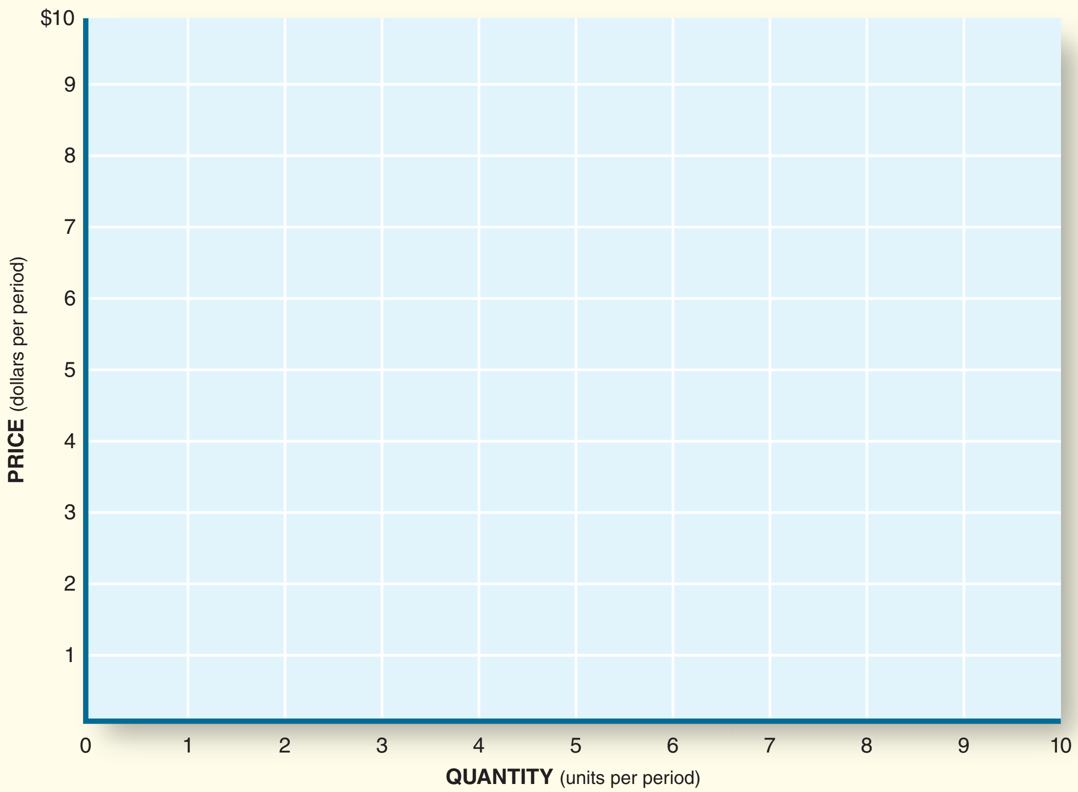
(*ii*) How large is it? __________

(*c*) If a *maximum* price (price ceiling) of $3 is set,

(*i*) What disequilibrium situation results? __________

(*ii*) How large is it? __________

Illustrate these answers.

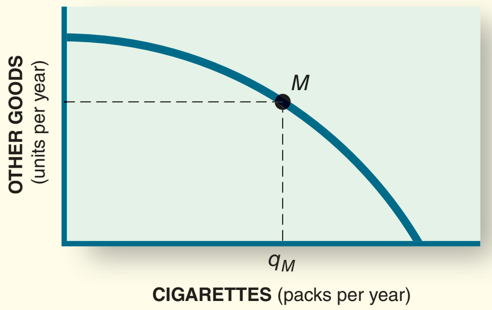


PROBLEMS FOR CHAPTER 4

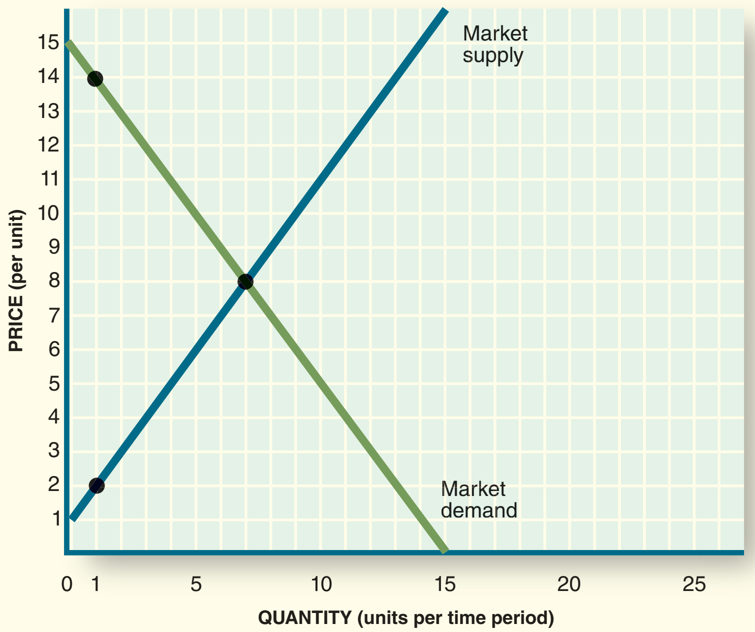
Name: ____________________

LO4-1 1. In Figure 4.2 (p. 73), by how much is the market
   (*a*) Overproducing private goods? ________
   (*b*) Underproducing public goods? ________

LO4-1 2. Use Figure 4.3 (p. 75) to illustrate on the accompanying production possibilities curve the optimal mix of output (*X*).



LO4-1 3. Assume that the product depicted below generates external costs in consumption of $4 per unit.
   (*a*) What is the market price (market value) of the product? ________
   (*b*) Draw the social demand curve.
   (*c*) What is the socially optimal output? ________
   (*d*) By how much does the market overproduce this good? ________



LO4-1 4. In the previous problem's market equilibrium, what is
   (*a*) The market value of the good? ________
   (*b*) The social value of the good? ________

LO4-1 5. If the average adult produces $90,000 of output per year, how much output is lost as a result of adult deaths from secondhand smoke, according to the News on page 74? $________

LO4-3 6. (*a*) Assuming a 10 percent sales tax is levied on all consumption, complete the following table:

Income	Consumption	Sales Tax	Percentage of Income Paid in Taxes
$10,000	$11,000	________	________
20,000	20,000	________	________
40,000	36,000	________	________
80,000	60,000	________	________

   (*b*) Is the sales tax (A) progressive or (B) regressive? ________

PROBLEMS FOR CHAPTER 4 (cont'd)

Name: ______________________

LO4-4 7. If a new home can be constructed for $175,000, what is the opportunity cost of federal defense spending, measured in terms of private housing? (Assume a defense budget of $700 billion.) __________

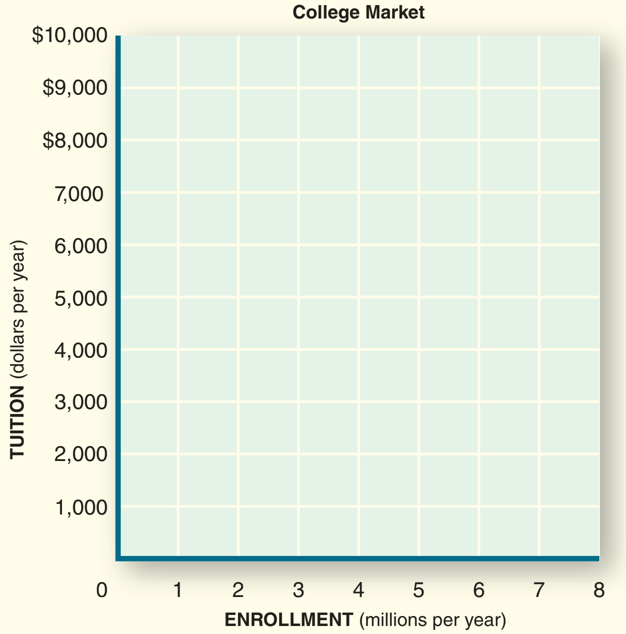
LO4-1 8. Suppose the following data represent the market demand for college education:

Tuition (per year)	$1,000	$2,000	$3,000	$4,000	$5,000	$6,000	$7,000	$8,000
Enrollment demanded (in millions per year)	8	7	6	5	4	3	2	1

(*a*) If tuition is set at $3,000, how many students will enroll? __________

Now suppose that society gets an external benefit of $1,000 for every enrolled student.

(*b*) Draw the social and market demand curves for this situation on the graph below.
(*c*) What is the socially optimal level of enrollment at the same tuition price of $3,000? __________
(*d*) How large of a subsidy is needed to achieve this optimal outcome? ____________________



LO4-1 9. Assume the market demand for cigarettes is

Price per pack	$10	$9	$8	$7	$6	$5	$4	$3
Quantity demanded (million packs per year)	2	4	6	8	10	12	14	16

(*a*) If cigarettes are priced at $7 a pack, how many packs will smokers buy? __________
(*b*) If secondhand smoke creates $2 of harm per pack, what is the optimal rate of smoking? __________
(*c*) How large a tax is needed to achieve this outcome? __________

LO4-3 10. According to the News on page 82, what percentage of income is spent on lottery tickets by
(*a*) A poor family with income of $18,000 per year? __________
(*b*) An affluent family with income of $40,000 per year? __________

LO4-2 11. (*a*) Between 2000 and 2010, by what percent did federal spending increase
(*i*) in nominal terms? __________
(*ii*) in real (inflation-adjusted terms)? __________
(*b*) What percent of nominal total output (GDP) came from federal purchases in
(*i*) 2000? __________
(*ii*) 2010? __________

(use end covers of text or **www.bea.gov** for data)

PROBLEMS FOR CHAPTER 5

Name: ______________________

LO5-1 1. Suppose that furniture production encompasses the following stages:

Stage 1: Trees are sold to lumber company.	$ 8,000
Stage 2: Lumber is sold to furniture company.	$17,000
Stage 3: Furniture company sells furniture to retail store.	$28,000
Stage 4: Furniture store sells furniture to consumer.	$56,000

(*a*) What is the value added at each stage?
Stage 1: ________
Stage 2: ________
Stage 3: ________
Stage 4: ________

(*b*) How much does this output contribute to GDP? ________

(*c*) How would answer *(b)* change if the lumber were imported from Canada? ________

LO5-2 2. If real GDP increases by 2 percent next year and the price level goes up by 4 percent, what will happen to nominal GDP? ________

LO5-2 3. What was real per capita GDP in 1933 measured in 2008 prices? (Use the data in Table 5.4 to compute your answer.) ________

LO5-4 4. Based on the following figures,

Consumption	$200 billion
Depreciation	20
Retained earnings	12
Gross investment	30
Imports	40
Exports	50
Net foreign factor income	10
Government purchases	60

(*a*) How much is GDP? ________

(*b*) How much is net investment? ________

(*c*) How much is national income? ________

(*d*) If all prices were to double overnight, what would be the
(*i*) Change in real GDP? ________
(*ii*) Change in nominal GDP? ________

LO5-4 5. What share of U.S. total income in 2010 consisted of

(*a*) Wages and salaries? ________

(*b*) Corporate profits? ________

(*Note:* See Table 5.5 for data.)

LO5-2 6. (*a*) Compute real GDP for 2010 using average prices of 2000 as the base year. (On the inside covers of this book you'll find data for GDP and the GDP "price deflator" used to measure inflation.) ________

(*b*) By how much did real GDP increase between 2000 and 2010? ________

(*c*) By how much did nominal GDP increase between 2000 and 2010? ________

LO5-2 7. Suppose all the dollar values in Problem 4 were in 2000 dollars. Use the Consumer Price Index shown on the end cover of this book to convert Problem 4's GDP to 2010 dollars. What is the value of that GDP in 2010 dollars? (You'll be converting the figures from their nominal to their real values, with 2010 as the base year; use the following formula: $CPI_2/CPI_1 = GDP_2/GDP_1$.) ________

LO5-2 8. According to the data in Table 5.3, what is

(*a*) Real GDP in 2008, at prices of 2007? ________

(*b*) Real GDP in 2007, at prices of 2008? ________

 Name: ______________________

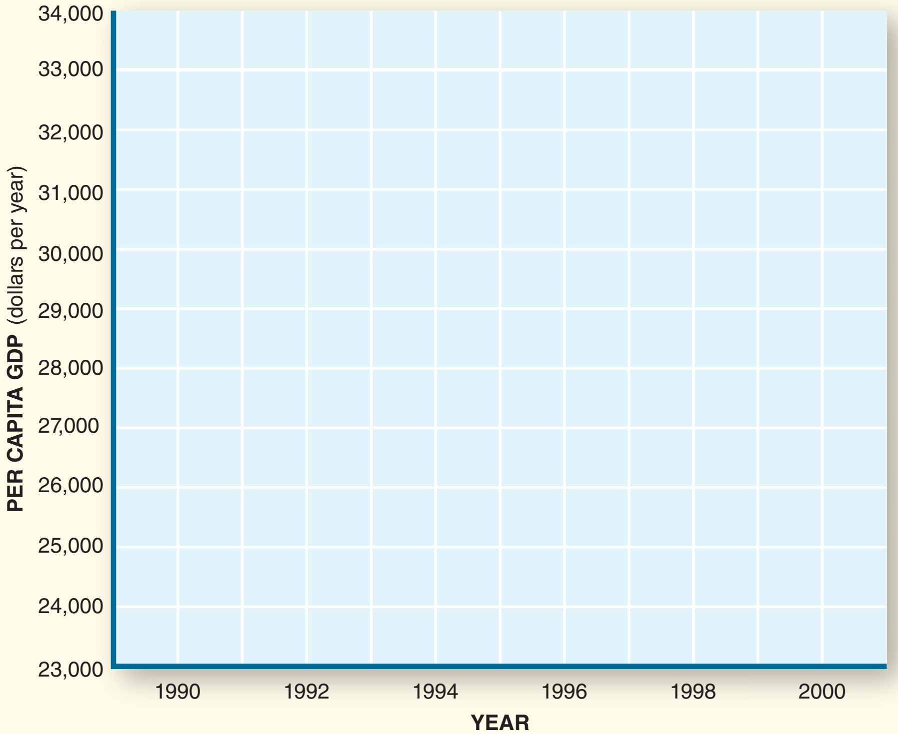
LO5-2 9. On the accompanying graph, illustrate *(A)* nominal per capita GDP and *(B)* real per capita GDP for each year. (The necessary data appear on the endpapers of this book.)

(*a*) By what percentage did nominal per capita GDP increase in the 1990s? ________

(*b*) By what percentage did real per capita GDP increase in the 1990s? ________

(*c*) In how many years did nominal per capita GDP decline? ________

(*d*) In how many years did real per capita GDP decline? ________



LO5-1 10. According to the News on page 109, do per capita GDP data (A) overstate or (B) understate the rise in U.S. well-being since 1990? (Enter A or B.) ________

LO5-3 11. Using the following data, what is the value of

(*a*) total output (GDP)? ________

(*b*) total income? ________

Consumer goods and services	$10,000
Wages and salaries	9,000
Corporate profits	1,000
Investment in plants, equipment, and inventory	2,500
Proprietor's income	1,500
Taxes on output and imports	1,000
Depreciation	1,500
Exports	1,500
Government goods and services	3,000
Imports	2,500
Rents	500

PROBLEMS FOR CHAPTER 6

Name: ______________________

LO6-1 1. According to Figure 6.1 (p. 114),
(*a*) What percentage of the civilian labor force was employed? ________%
(*b*) What percentage of the civilian labor force was unemployed? ________%
(*c*) What percentage of the *population* was employed in civilian jobs? ________%

LO6-1 2. If the unemployment rate in 2010 had not risen since 2008, how many more workers would have been employed in 2010? (Use Figure 6.1 and this book's endpapers). ________

LO6-1 3. Between 2000 and 2010, by how much did
(*a*) The labor force increase? ________
(*b*) Total employment increase? ________
(*c*) Total unemployment increase? ________
(*d*) Total output (real GDP) increase? ________
(*Note:* Data on inside covers of the text.)

LO6-1 4. If the labor force of 150 million people is growing by 1.5 percent per year, how many new jobs have to be created each *month* to keep unemployment from increasing? ________
Web query: By how much did U.S. employment actually increase last month (**www.bls.gov**)? ________

LO6-1 5. Between 1980 and 2010, by how much did the labor force participation rate (Figure 6.2) of
(*a*) Men fall? ________%
(*b*) Women rise? ________%

LO6-2 6. According to Okun's Law, how much output (real GDP) was lost in 2010 when the nation's unemployment rate increased from 9.3 percent to 9.6 percent? ________%

LO6-1 7. Suppose the following data describe a nation's population:

	Year 1	Year 2
Population	200 million	204 million
Labor force	120 million	123 million
Unemployment rate	6 percent	6 percent

(*a*) How many people are unemployed in each year? Year 1: ________ Year 2: ________
(*b*) How many people are employed in each year? Year 1: ________ Year 2: ________
(*c*) Compute the employment rate (i.e., number employed ÷ population) in each year. Year 1: ________ Year 2: ________

LO6-1 8. Based on the data in the previous problem, what happens ("up" or "down") to each of the following numbers in Year 2 when 1 million jobseekers become "discouraged workers"?
(*a*) Number of unemployed persons. ________
(*b*) Unemployment rate. ________
(*c*) Employment rate. ________

LO6-1 9. According to the News on page 126, in October 2009
(*a*) How many people were in the labor force? ________
(*b*) How many people were employed? ________

LO6-1 10. In 2010, how many of the 800,000 black teenagers who participated in the labor market
(*a*) Were unemployed? ________
(*b*) Were employed? ________
(*c*) Would have been employed if they had the same unemployment rate as white teenagers? ________
(See Figure 6.4 for needed info.)

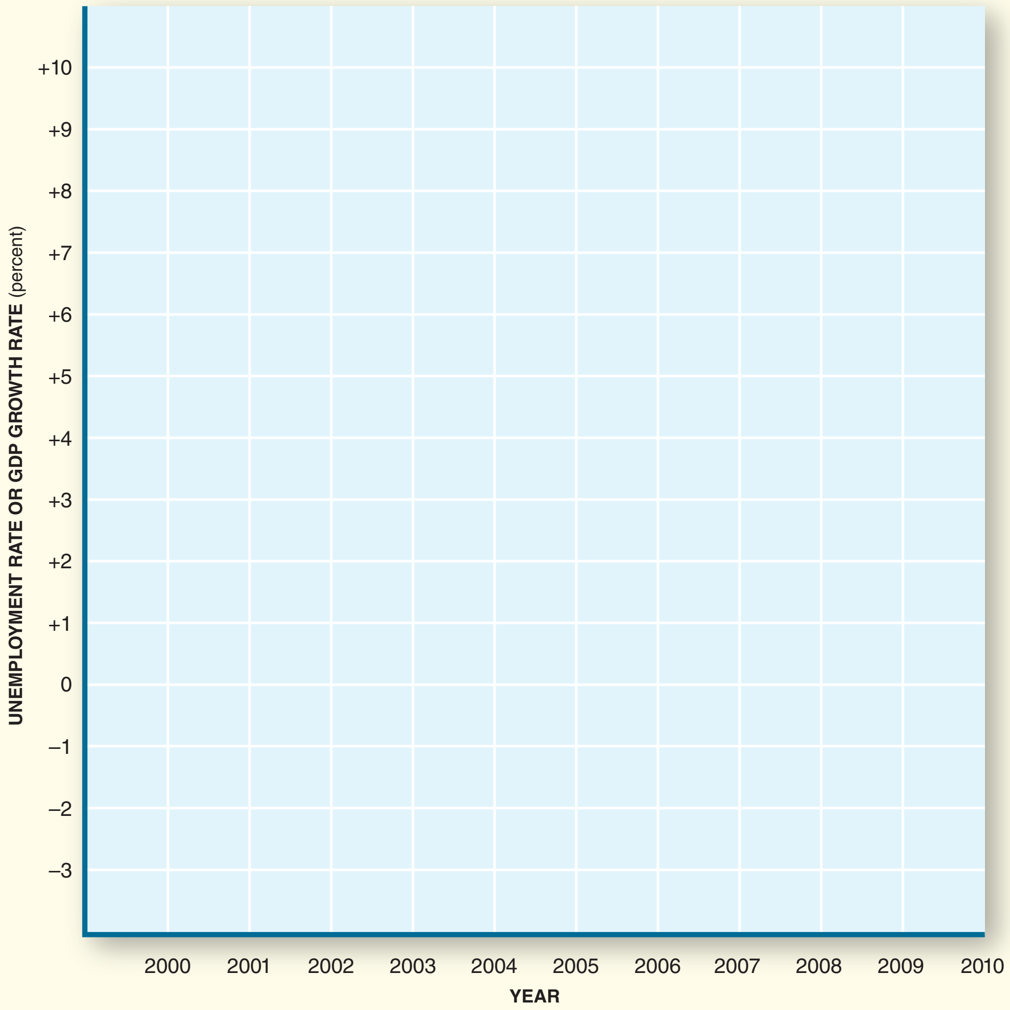
 Name: ______________________

LO6-4 11. On the accompanying graph, illustrate both the unemployment rate and the real GDP growth rate for each year. (The data required for this exercise are on the inside cover of this book.)

(*a*) In how many years was "full employment" achieved? (Use the current benchmark.) __________

(*b*) Unemployment and growth rates tend to move in opposite directions. Which appears to change direction first? __________

(*c*) In how many years does the unemployment rate increase even when output is expanding? __________



LO6-3 12. For each situation described here determine the type of unemployment:

(*a*) Steelworkers losing their jobs due to decreased demand for steel. __________

(*b*) A college graduate waiting to accept a job that allows her to utilize her level of education. __________

(*c*) The Great Recession of 2008–2010. __________

LO6-4 13. (*a*) What was the unemployment rate in 2010? __________

(*b*) How many more jobs were needed to bring the unemployment rate down to the 5 percent full-employment threshold? __________

(*c*) Using Okun's Law, how much more would total output (GDP) have had to grow to create that many jobs? __________

PROBLEMS FOR CHAPTER 7

Name: ______________________

connect ECONOMICS

LO7-1 1. According to the World View on page 138, how many Zimbabwean dollars could you buy with one U.S. dollar in January 2009? ________

LO7-2 2. If tuition keeps increasing at the same rate as in 2010–2011 (see News, p. 134), how much will it cost to complete a degree at a private college in four years? ________

LO7-1 3. Suppose you'll have an annual nominal income of $20,000 for each of the next three years, and the inflation rate is 5 percent per year.

(*a*) Find the real value of your $20,000 salary for each of the next three years.

Year 1: ________
Year 2: ________
Year 3: ________

(*b*) If you have a COLA in your contract, and the inflation rate is 5 percent, what is the real value of your salary for each year?

Year 1: ________
Year 2: ________
Year 3: ________

LO7-2 4. Suppose you borrow $100 of principal that must be repaid at the end of two years, along with interest of 5 percent a year. If the annual inflation rate turns out to be 10 percent,

(*a*) What is the real rate of interest on the loan? ________
(*b*) What is the real value of the principal repayment? ________
(*c*) Who loses, (A) the debtor (B) or the creditor? (Enter A or B.) ________

LO7-1 5. Assuming that the following table describes a typical consumer's complete budget, compute the item weights for each product.

Item	Quantity	Unit Price	Item Weight
Coffee	20 pounds	$ 5	________
Tuition	1 year	4,000	________
Pizza	150 pizzas	10	________
DVD rental	75 days	2	________
Vacation	1 week	250	Total: ________

LO7-1 6. Suppose the prices listed in the table for Problem 5 changed from one year to the next, as shown here. Use the rest of the table to compute the average inflation rate.

	Unit Price						
Item	**Last Year**	**This Year**	**Percentage Change in Price**	×	**Item Weight**	=	**Inflation Impact**
Coffee	$ 5	$ 6	________		________		________
Tuition	4,000	5,000	________		________		________
Pizza	10	12	________		________		________
DVD rental	2	1	________		________		________
Vacation	250	300	________		________		________
					Average inflation:		________

LO7-1 7. Use the item weights in Figure 7.2 to determine the percentage change in the CPI that would result from a

(*a*) 10 percent increase in entertainment prices. ________
(*b*) 6 percent decrease in transportation costs. ________
(*c*) Doubling of clothing prices. ________

(*Note:* Review Table 7.4 for assistance.)

PROBLEMS FOR CHAPTER 7 (cont'd)

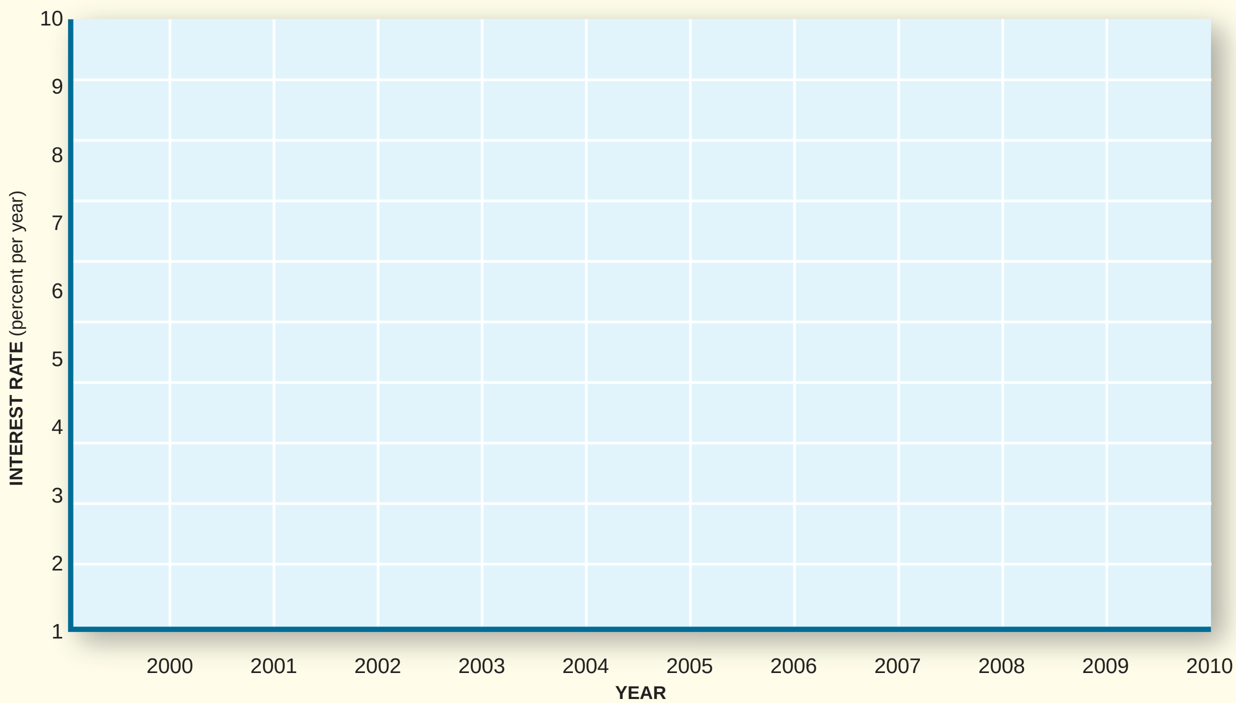
Name: ______________________

LO7-1 8. Use the GDP deflator data on the inside cover of this book to compute real GDP in 2000 at 2010 prices. ________

LO7-1 9. According to Table 7.3 (p. 137), what happened during the period shown to the
(*a*) Nominal price of gold? ________
(*b*) Real price of gold? ________

LO7-3 10. Using the information on page 141 and Table 7.5, by what percentage did the price level increase
(*a*) Between 1982–1984 and 2010? ________%
(*b*) Between 2000 and 2010? ________%

LO7-3 11. On the accompanying graph, illustrate for each year (*A*) the nominal interest rate (use the prime rate of interest), (*B*) the CPI inflation rate, and (*C*) the real interest rate (adjusted for same-year CPI inflation). The required data appear on the inside cover of this book.
(*a*) In what years was the official goal of price stability met? ________
(*b*) In what years was the inflation rate lowest? ________
(*c*) In the most recent of those years, what was the
(*i*) Nominal interest rate? ________
(*ii*) Real interest rate? ________
(*d*) What was the range of rates during this period for
(*i*) Nominal interest rates? ________
(*ii*) Real interest rates? ________
(*e*) On a year-to-year basis, which varies more—nominal or real interest rates? ________



LO7-4 12. If a basic input like oil goes up in price by 20 percent and accounts for 3 percent of total costs in the economy, how much cost-push inflation results? ________

PROBLEMS FOR CHAPTER 8

Name: ____________________________

LO8-3 1. (*a*) How much output is unsold at the price level P_1 in Figure 8.7? ________
(*b*) At what price level is all output produced sold? ________

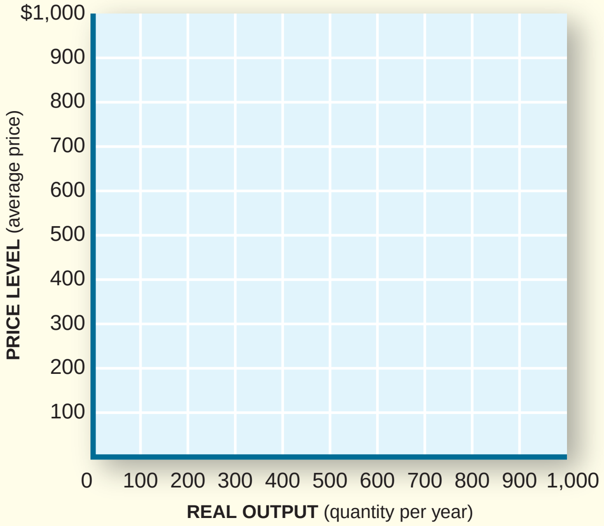
LO8-2 LO8-3 2. In Figure 8.8, what price level will induce people to buy all the output produced at full employment? ________

LO8-1 3. Suppose you have $7,000 in savings when the price level index is at 100.
(*a*) If inflation pushes the price level up by 10 percent, what will be the real value of your savings? ________
(*b*) What is the real value of your savings if the price level *declines* by 10 percent? ________

LO8-3 4. Use the following information to draw aggregate demand (AD) and aggregate supply (AS) curves on the following graph. Both curves are assumed to be straight lines.

Price Level	Output Demanded	Output Supplied
1,000	0	$1,000
100	$900	100

(*a*) At what price level does equilibrium occur? ________
(*b*) What curve (AD or AS) would have shifted if a new equilibrium were to occur at an output level of 800 and a price level of $800? ________
(*c*) What curve would have shifted if a new equilibrium were to occur at an output level of 800 and price level of $500? ________



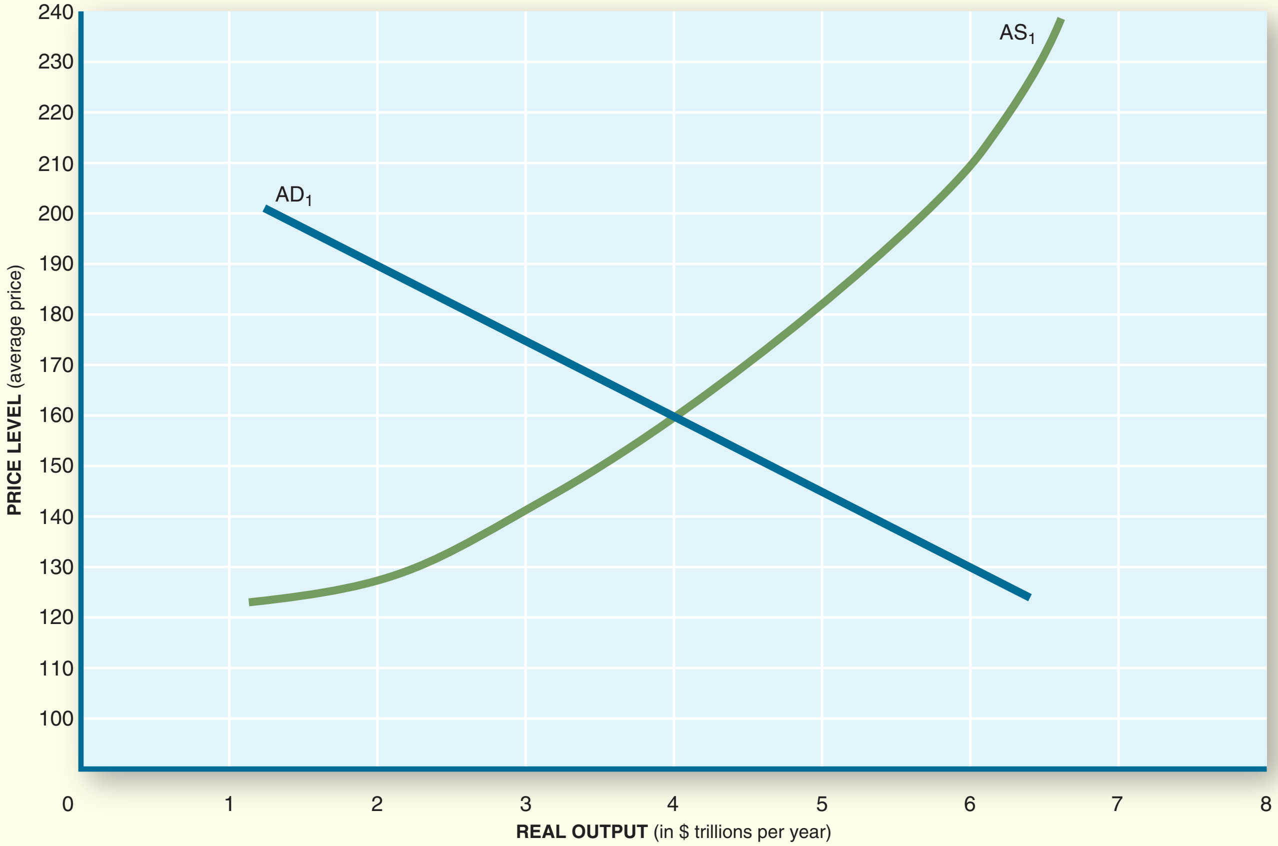
LO8-1 5. According to the News on page 162,
(*a*) By what percentage did GDP decline in the fourth quarter of 2008? ________%
(*b*) At that rate, how much output would have been lost in the $14 trillion economy of 2008? $________
(*c*) How much income did this represent for each of the 300 million U.S. citizens? $________
(*d*) What was the largest percentage GDP decline in a post–World War II U.S. recession? (See Table 8.1.) ________%

LO8-3 6. If the AS curve shifts to the right, what happens ("increases" or "decreases") to
(*a*) The equilibrium rate of output? ________
(*b*) The equilibrium price level? ________

 Name: ____________________

LO8-4 7. If the AD curve shifts to the right, what happens ("increases" or "decreases") to
(*a*) The equilibrium rate of output? __________
(*b*) The equilibrium price level? __________

LO8-4 8. Assume that the accompanying graph depicts aggregate supply and demand conditions in an economy. Full employment occurs when \$6 trillion of real output is produced.
(*a*) What is the equilibrium rate of output? __________
(*b*) How far short of full employment is the equilibrium rate of output? __________
(*c*) Illustrate a shift of aggregate demand that would change the equilibrium rate of output to \$6 trillion. Label the new curve AD_2.
(*d*) What is the price level at this full-employment equilibrium? __________
(*e*) Illustrate a shift of aggregate supply (AS_2) that would, when combined with AD_1, move equilibrium output to \$6 trillion.
(*f*) What is the price level at this new equilibrium? __________



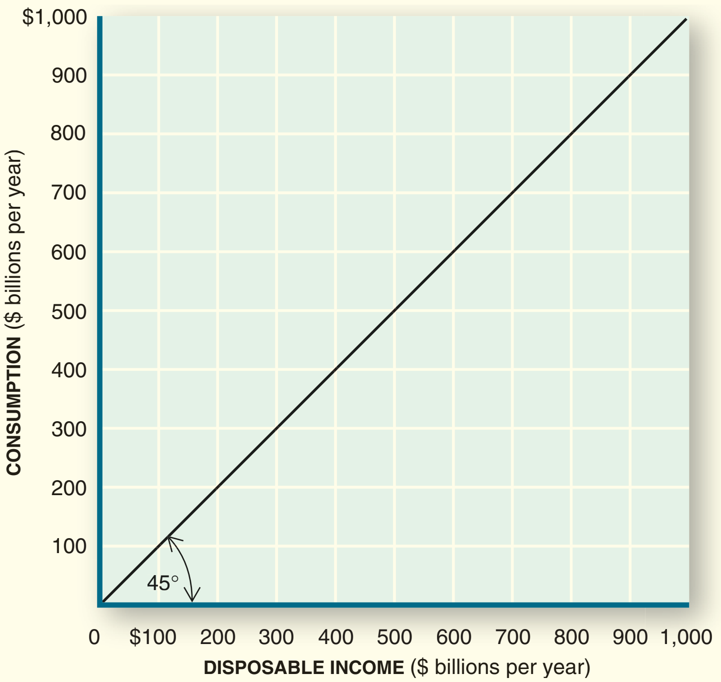
PROBLEMS FOR CHAPTER 9

Name: ____________________

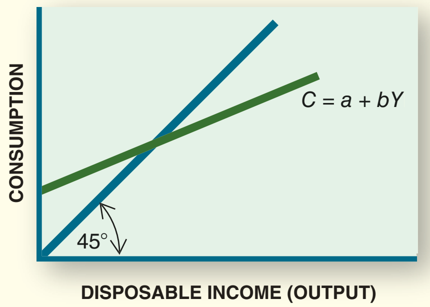
LO9-2 1. From the information on pages 181–83, in 2010 what was
- (*a*) The APC? ________
- (*b*) The APS? ________
- (*c*) The MPC? ________
- (*d*) The MPS? ________

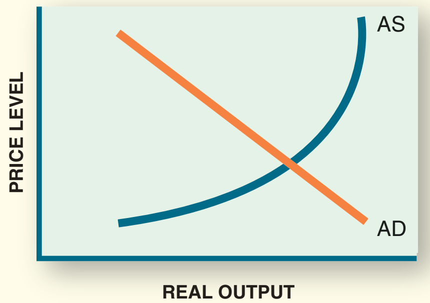
LO9-2 2. (*a*) What is the implied MPC in the News on page 186? ________
(*b*) What is the implied APC? ________

LO9-2
LO9-4 3. On the accompanying graph, draw the consumption function $C = \$200 + 0.75Y_D$.
- (*a*) At what level of income do households begin to save? Designate that point on the graph with the letter *A*. ________
- (*b*) By how much does consumption increase when income rises \$200 beyond point *A*? Designate this new level of consumption with point *B*. ________
- (*c*) Illustrate the impact on consumption of the change in consumer confidence described in the News on page 187.



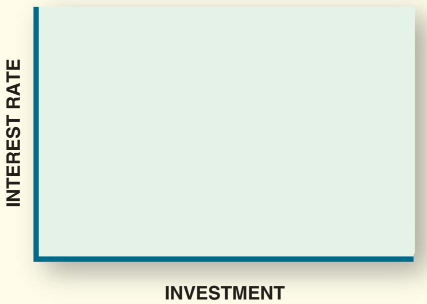
LO9-4 4. Illustrate on the following two graphs the wealth effect from declining home prices (discussed on p. 189).

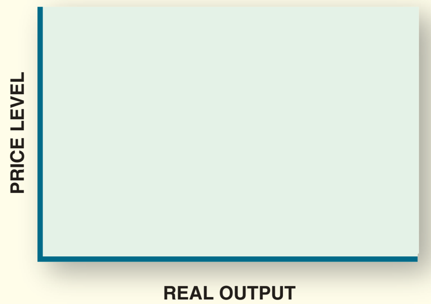




LO9-4 5. If every \$1,000 increase in the real price of homes adds 6 cents to annual consumer spending (the "wealth effect"), by how much did consumption *decline* when home prices fell by \$2 trillion in 2006–2008? ________

LO9-3 6. Illustrate on the following graphs the impact of Panasonic's changed investment plans (World View, p. 191).





 Name: ______________________

LO9-4 7. What was the range, in absolute percentage points, of the variation in quarterly growth rates between 2005 and 2008 of
(*a*) Consumer spending? ______
(*b*) Investment spending? ______
(*Note:* See Figure 9.8 for data.)

LO9-5 8. Complete the following table:

	Real Output Demanded (in $ billions) by									
Price Level	Consumers	+	Investors	+	Government	+	Net Exports	+	Aggregate Demand	Aggregate Supply
120	80		15		20		10		___	320
110	92		16		20		12		___	260
100	104		17		20		14		___	215
90	116		18		20		16		___	200
80	128		19		20		18		___	185
70	140		20		20		20		___	175
60	154		21		20		22		___	170

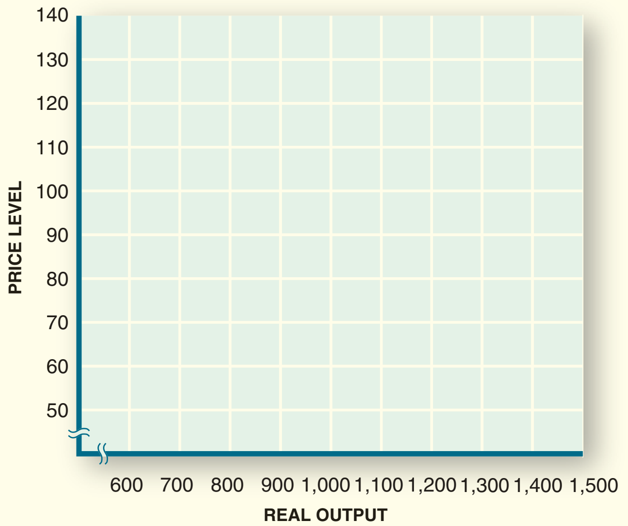
(*a*) What is the level of equilibrium GDP? ______
(*b*) What is the equilibrium price level? ______
(*c*) If full employment occurs at real GDP = $200 billion, what kind of GDP gap exists? ______
(*d*) How large is that gap? ______
(*e*) Which macro problem exists here (unemployment or inflation)? ______

LO9-1 LO9-5 9. On the following graph, draw the AD and AS curves with these data:

Price level	140	130	120	110	100	90	80	70	60	50
Real output										
Demanded	600	700	800	900	1,000	1,100	1,200	1,300	1,400	1,500
Supplied	1,200	1,150	1,100	1,050	1,000	950	900	800	600	400

(*a*) What is the equilibrium
(*i*) Real output level? ______
(*ii*) Price level? ______

Suppose net exports decline by $150 at all price levels, but all other components of aggregate demand remain constant.
(*b*) Draw the new AD curve.
(*c*) What is the new equilibrium
(*i*) Output level? ______
(*ii*) Price level? ______
(*d*) What macro problem has arisen in this economy: (A) unemployment or (B) inflation? ______



PROBLEMS FOR CHAPTER 10

Name: ______________________

LO10-3 1. From 1960 to 2010, in how many years did
(*a*) Real consumption decline? ________
(*b*) Real investment decline? ________
(*c*) Real government spending increase at least \$100 billion? (See the data on the end covers of this text.) ________

LO10-1 2. If the consumption function is $C = \$300 \text{ billion} + 0.9Y$,
(*a*) How much do consumers spend with incomes of \$4 trillion? ________
(*b*) How much do they save? ________

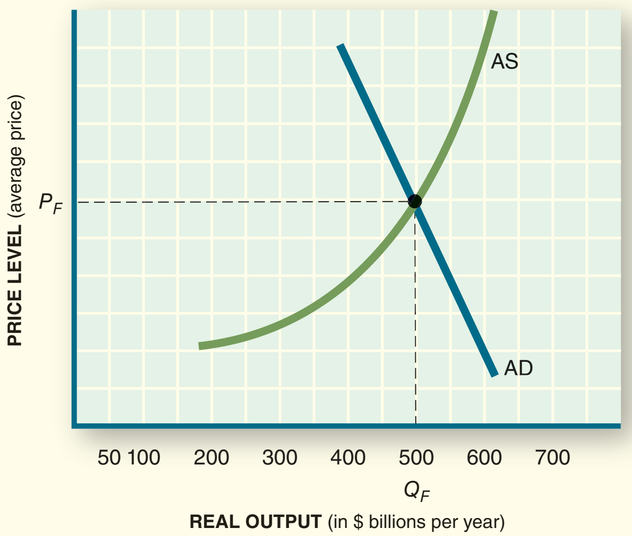
LO10-2 3. If the marginal propensity to consume is 0.8,
(*a*) What is the value of the multiplier? ________
(*b*) What is the marginal propensity to save? ________

LO10-2 4. Suppose that investment demand increases by \$200 billion in a closed and private economy (no government or foreign trade). Assume further that households have a marginal propensity to consume of 75 percent.
(*a*) Compute four rounds of multiplier effects:

	Changes in This Cycle's Spending	Cumulative Change in Spending
First cycle	________	________
Second cycle	________	________
Third cycle	________	________
Fourth cycle	________	________

(*b*) What will be the final cumulative impact on spending? ________

LO10-3 5. Illustrate in the following graph the impact of a sudden decline in consumer confidence that reduces autonomous consumption by \$50 billion at the price level P_F. Assume $MPC = 0.8$.
(*a*) What is the new equilibrium level of real output? (Don't forget the multiplier.) ________
(*b*) How large is the real GDP gap? ________
(*c*) Did average prices (A) increase or (B) decrease? ________



PROBLEMS FOR CHAPTER 10 (cont'd) Name: ____________________

LO10-1 6. By how much did annualized consumption decline in November 2008 when GDP was $14 trillion? (See News, p. 215.) ________

LO10-2 7. If Korean exports to the United States decline by $15 billion (World View, p. 217) by how much will cumulative Korean spending drop if their MPC is 0.75? ________

LO10-3 8. According to World Bank estimates (see p. 222), by how much did consumer spending decline as a result of the 40-point drop in the index of consumer confidence between 2007 and 2009 (Figure 10.10)? ________

LO10-3 9. How large is the inflationary GDP gap in Figure 10.9? ________

LO10-2 LO10-3 10. The accompanying graph depicts a macro equilibrium. Answer the questions based on the information in the graph.

(*a*) What is the equilibrium rate of GDP? ________

(*b*) If full-employment real GDP is $1,200, what problem does this economy have? ________

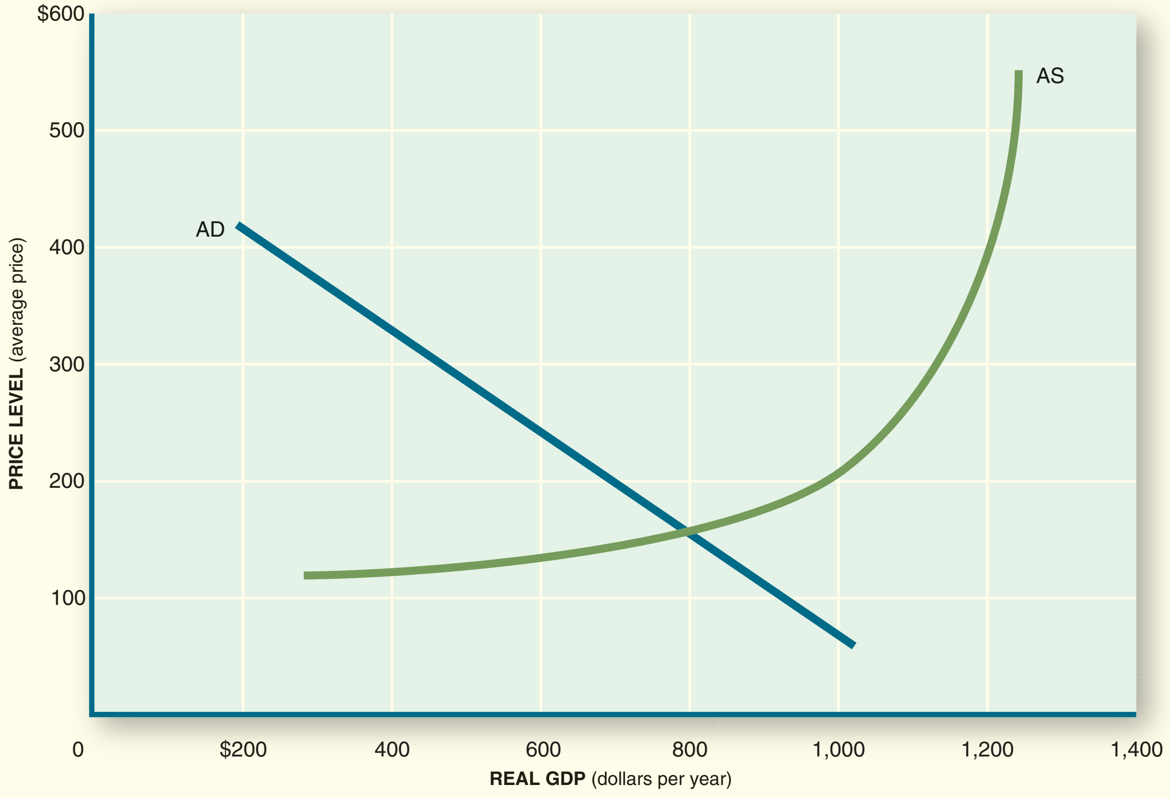
(*c*) How large is the real GDP gap? ________

(*d*) If the multiplier were equal to 4, how much additional investment would be needed to increase aggregate demand by the amount of the initial GDP gap? ________

(*e*) Illustrate the changes in autonomous investment and induced consumption that occur in (*d*).

(*f*) What happens to prices when aggregate demand increases by the amount of the initial GDP gap? ________

(*g*) Is full employment restored by the AD shift? ________



PROBLEMS FOR CHAPTER 11

Name: ______________________________

connect ECONOMICS

LO11-2 1. In the tax cut example on pages 236–37,
   (*a*) By how much does consumer saving increase initially? ________
   (*b*) How large is the initial spending injection? ________

LO11-2 2. Suppose the consumption function is

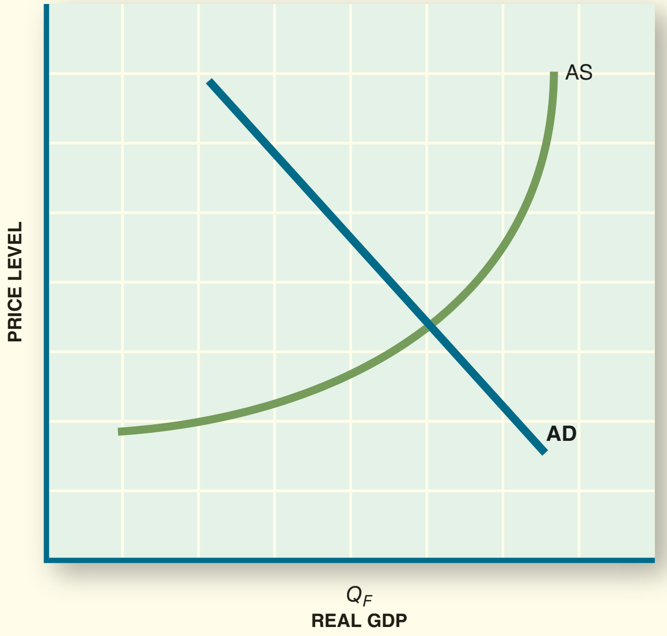
$$C = \$400 \text{ billion} + 0.8Y$$

and the government wants to stimulate the economy. By how much will aggregate demand at current prices shift initially (before multiplier effects) with
   (*a*) A $50 billion increase in government purchases? ________
   (*b*) A $50 billion tax cut? ________
   (*c*) A $50 billion increase in income transfers? ________

What will the cumulative AD shift be for
   (*d*) The increased G? ________
   (*e*) The tax cut? ________
   (*f*) The increased transfers? ________

LO11-2 3. Suppose the government decides to increase taxes by $20 billion to increase Social Security benefits by the same amount. How will this combined tax transfer policy affect aggregate demand at current prices? ________

LO11-3 4. On the accompanying graph, identify and label
   (*a*) Macro equilibrium.
   (*b*) The real GDP gap.
   (*c*) The AD excess or AD shortfall.
   (*d*) The new equilibrium that would occur with appropriate fiscal policy.



LO11-2 5. If the AD shortfall is $600 billion and the MPC is 0.9,
   (*a*) How large is the desired fiscal stimulus? ________
   (*b*) How large an income tax cut is needed? ________
   (*c*) Alternatively, how much more government spending would achieve the target? ________

LO11-3 6. If the AD excess is $300 billion and the MPC is 0.8,
   (*a*) How much fiscal restraint is desired? ________
   (*b*) By how much do income taxes have to be increased to get that restraint? ________

LO11-2 7. (*a*) According to the News on page 238, how much more did the average household spend on appliances, electronics, and furniture when it received the 2008 tax rebate? ________
   (*b*) If all 110 million households did so, how much did aggregate consumption increase? ________
   (*c*) If the MPC was 0.75, how much would cumulative spending increase as a result? ________

 Name: ______________

LO11-2 8. According to the World View on page 235,
(*a*) How large was China's 2008 fiscal stimulus? $ ________
(*b*) How much faster was GDP expected to grow as a result? ________
(*c*) According to the News on page 234 and Table 11.2, how large was President Obama's proposed fiscal stimulus? ________
(*d*) How much faster was GDP expected to grow in 2011 as a result? ________

LO11-4 9. According to the News on page 234, how much of a cumulative impact on spending could be expected from President Obama's
(*a*) Increase in government spending? ________
(*b*) Tax cuts? ________
Assume an MPC of 0.75.

LO11-2 10. Suppose that an increase in income transfers rather than government spending was the preferred policy for stimulating the economy depicted in Figure 11.4. By how much would transfers have to increase to attain the desired shift of AD? ________

LO11-2 11. If the marginal propensity to consume was 0.9, how large would each of the following need to be in order to restore a full-employment equilibrium in Figure 11.6?
(*a*) A tax increase. ________
(*b*) A government spending cut. ________
(*c*) A cut in income transfers. ________

LO11-1 12. Use the following data to answer the following questions:

Price level	10	20	30	40	50	60	70	80	90	100
Real GDP supplied	$500	600	680	750	800	880	910	940	960	970
Real GDP demanded	$960	920	880	840	800	760	720	680	640	600

(*a*) What is the rate of equilibrium GDP? ________
(*b*) If full employment occurs at a real output rate of $880, how large is the real GDP gap? ________
(*c*) If AD increases enough to restore full employment, what will the price level be? ________

PROBLEMS FOR CHAPTER 12

Name: ______________________

connect ECONOMICS

LO12-2 1. From 2008 to 2010 by how much did each of the following change?
(*a*) Tax revenue. ________
(*b*) Government spending. ________
(*c*) Budget deficit. ________
(*Note:* See Table 12.1.)

LO12-2 2. Since 1980, in how many years has the federal budget had a surplus? (See Figure 12.1.) ________

LO12-2 3. What country had the largest budget deficit (as a percentage of GDP) in 2011? ________

LO12-1 4. What would happen to the budget deficit if the
(*a*) GDP growth rate jumped from 2 percent to 5 percent? ________
(*b*) Inflation rate increased by two percentage points? ________
(*Note:* See Table 12.2 for clues.)

LO12-1 5. Between 2000 and 2010, in how many years was fiscal restraint initiated? (See Table 12.3.) ________

LO12-1 6. Use Table 12.3 to determine how much fiscal stimulus or restraint occurred between
(*a*) 2007 and 2008. ________
(*b*) 2008 and 2009. ________

LO12-4 7. Suppose a government has no debt and a balanced budget. Suddenly it decides to spend $4 trillion while raising only $3 trillion worth of taxes.
(*a*) What will be the government's deficit? ________
(*b*) If the government finances the deficit by issuing bonds, what amount of bonds will it issue? ________
(*c*) At a 5 percent rate of interest, how much interest will the government pay each year? ________
(*d*) Add the interest payment to the government's $4 trillion expenditures for the next year, and assume that taxes remain at $3 trillion. In the second year, compute the
(*i*) Deficit. ________
(*ii*) Amount of new debt (bonds) issued. ________
(*iii*) Total debt at end of year. ________
(*iv*) Debt service requirement. ________
(*e*) Repeat these calculations for the third, fourth, and fifth years, assuming that the government taxes at a rate of $3 trillion each year and has noninterest expenditures of $4 trillion annually.

	Year 3	Year 4	Year 5
Deficit	________	________	________
New debt	________	________	________
Total debt	________	________	________
Debt service	________	________	________

(*f*) What is the ratio of interest payments, relative to the deficit, with each passing year?

Year 2	Year 3	Year 4	Year 5
________	________	________	________

(*g*) What will happen to the ratio of government debt to government expenditure with each passing year? ________

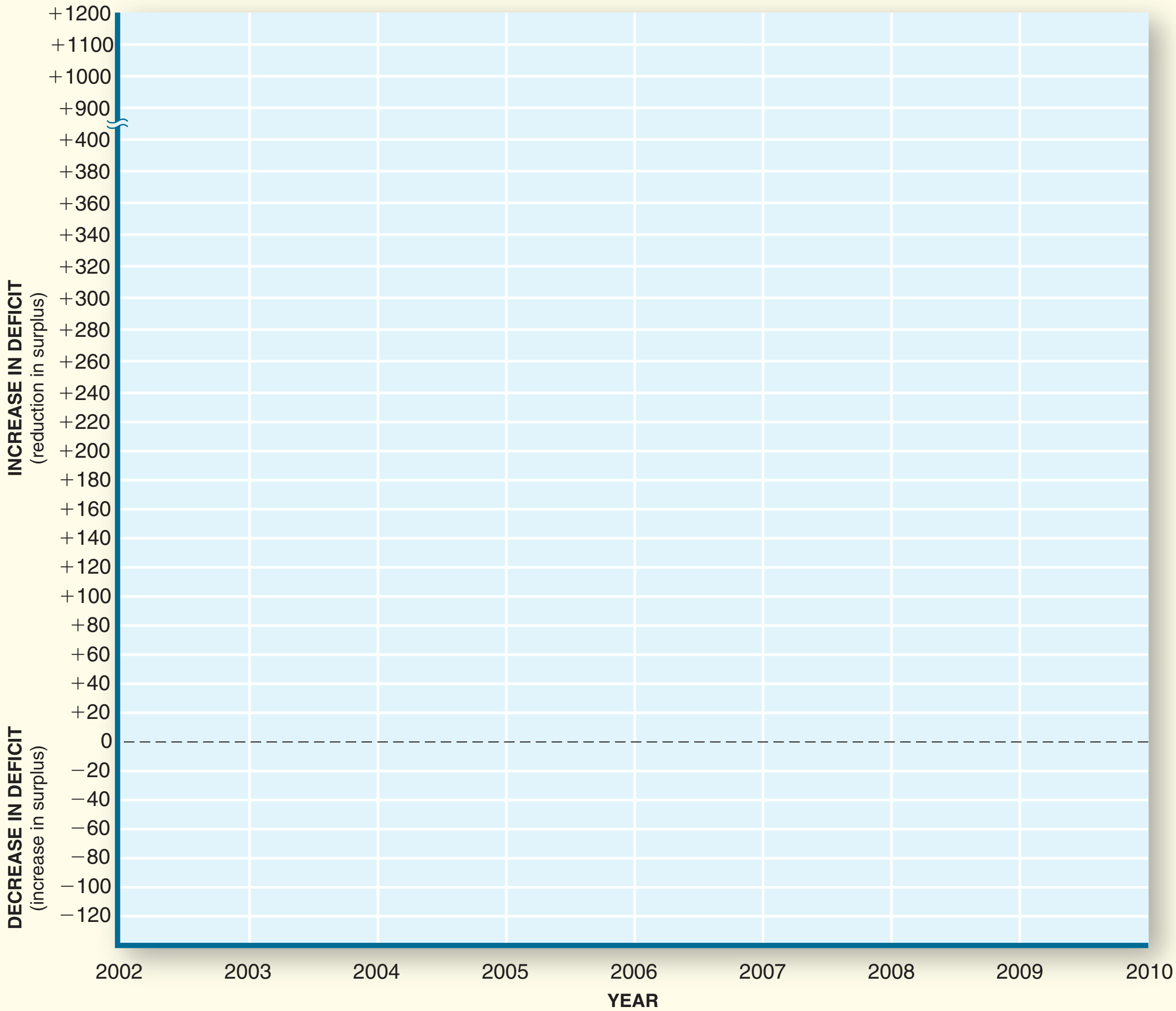
LO12-1 8. (*a*) According to the News on page 258, how much fiscal restraint occurred between 1931 and 1933? ________
(*b*) By how much did this policy reduce aggregate demand if the MPC was 0.75? ________

 Name: ____________________

LO12-3 9. In Figure 12.5, what is the opportunity cost of increasing government spending from g_1 to g_2 if
(*a*) No external financing is available? ________
(*b*) Complete external financing is available? ________

LO12-4 10. (*a*) What percentage of U.S. debt do foreigners hold? (See Figure 12.4.) ________
(*b*) If the interest rate on U.S. Treasury debt is 4 percent, how much interest do foreigners collect each year from the U.S. Treasury? (Assume a *total* debt of $16 trillion.) ________

LO12-1 11. Use the accompanying graph to illustrate *changes* in the structural and total deficits for fiscal years 2002–2010 (use the data in Table 12.3).
(*a*) In how many years do the two deficits change in *different* directions? ________
(*b*) In how many years was the government pursuing fiscal restraint? ________



PROBLEMS FOR CHAPTER 13

Name: ____________________

LO13-1 1. If you cash a $50 traveler's check at a bank, by how much do(es)

(*a*) M1 change? ________

(*b*) M2 change? ________

(*c*) Bank reserves change? ________

If you deposit the traveler's check in your bank account, by how much do(es)

(*d*) M1 change? ________

(*e*) M2 change? ________

(*f*) Bank reserves change? ________

LO13-2 2. Suppose a bank's balance sheet looks as follows:

Assets		Liabilities	
Reserves	$ 640	Deposits	$6,000
Loans	5,360		

and banks are required to hold reserves equal to 10 percent of deposits.

(*a*) How much excess reserves does the bank hold? ________

(*b*) How much more can this bank lend? ________

LO13-2 3. Suppose a bank's balance sheet looks like this:

Assets		Liabilities	
Reserves		Deposits	$600
Excess	$ 70		
Required	30		
Loans	500		
Total	$600	Total	$600

(*a*) What is the required reserve ratio? ________

(*b*) How much money can this bank still lend? ________

LO13-3 4. What is the value of the money multiplier when the required reserve ratio is

(*a*) 12.5 percent? ________

(*b*) 10 percent? ________

LO13-2 5. In December 1994 a man in Ohio decided to deposit all of the 8 *million* pennies he'd been saving for nearly 65 years. (His deposit weighed over 48,000 pounds!) With a reserve requirement of 10 percent, what will be the cumulative change for the banking system in

(*a*) Transactions deposits? ________

(*b*) Total reserves? ________

(*c*) Lending capacity? ________

LO13-2 6. (*a*) When the reserve requirement changes, which of the following will change for an individual bank? (A = change, B = no change.)

Transactions deposits ________

Total reserves ________

Required reserves ________

Excess reserves ________

Lending capacity ________

(*b*) When the reserve requirement changes, which of the following will change in the total banking system? (A = change, B = no change.)

Transactions deposits ________

Total reserves ________

Required reserves ________

Excess reserves ________

Lending capacity ________

LO13-2 7. In Table 13.2, how much unused lending capacity does Eternal Savings have at step 4? ________

 Name: ____________

LO13-2 8. How large is the difference between the interest rates on six-month and five-year jumbo CDs (see News, p. 280)? ________

LO13-3 9. Suppose that a lottery winner deposits $12 million in cash into her transactions account at the Bank of America (B of A). Assume a reserve requirement of 20 percent and no excess reserves in the banking system prior to this deposit.

(*a*) Use step 1 in the following T-accounts to show how her deposit affects the balance sheet at B of A.

(*b*) Has the money supply been changed by her deposit? ________

(*c*) Use step 2 here to show the changes at B of A after the bank fully uses its new lending capacity.

(*d*) Has the money supply been changed in step 2? ________

(*e*) In step 3 the new borrower(s) writes a check for the amount of the loan in step 2. That check is deposited at another bank, and B of A pays the other bank when the check clears. What does the B of A balance sheet look like now?

(*f*) After the entire banking system uses the lending capacity of the initial ($12 million) deposit, by how much will the following have changed?

Total reserves	________
Total deposits	________
Total loans	________
Cash held by public	________
The money supply	________

Step 1: Winnings Deposited
Bank of America

Assets (in Millions)		Liabilities (in Millions)	
Reserves:		Deposits	______
Required	______		
Excess	______		
Subtotal	______		
Loans	______		
Total assets	______	Total liabilities	______

Step 2: Loans Made
Bank of America

Assets (in Millions)		Liabilities (in Millions)	
Reserves:		Deposits	______
Required	______		
Excess	______		
Subtotal	______		
Loans	______		
Total assets	______	Total liabilities	______

Step 3: Check Clears
Bank of America

Assets (in Millions)		Liabilities (in Millions)	
Reserves:		Deposits	______
Required	______		
Excess	______		
Subtotal	______		
Loans	______		
Total assets	______	Total liabilities	______

PROBLEMS FOR CHAPTER 14

Name: ____________________

LO14-1 1. What is the money multiplier when the reserve requirement is

(*a*) 0.125? ______
(*b*) 0.111? ______

LO14-2 2. In Table 14.1, what would the following values be if the required reserve ratio fell from 0.20 to 0.10?

(*a*) Total deposits ______
(*b*) Total reserves ______
(*c*) Required reserves ______
(*d*) Excess reserves ______
(*e*) Money multiplier ______
(*f*) Unused lending capacity ______

LO14-2 3. Assume that the following data describe the condition of the banking system:

Total reserves	$200 billion
Transactions deposits	$800 billion
Cash held by public	$400 billion
Reserve requirement	0.20

(*a*) How large is the money supply (M1)? ______
(*b*) How large are *required* reserves? ______
(*c*) How large are *excess* reserves? ______
(*d*) By how much could the banks increase their lending activity? ______

LO14-2 4. In Problem 3, suppose the Fed wanted to stop further lending activity. To do this, what reserve requirement should the Fed impose? ______

LO14-2 5. According to the News on page 300 and the World View on page 309, what was the money multiplier in

(*a*) The United States? ______
(*b*) China? ______

LO14-2 6. Assume the banking system contains the following amounts:

Total reserves	$ 80 billion
Transactions deposits	$800 billion
Cash held by public	$100 billion
Reserve requirement	0.10

(*a*) Are the banks fully utilizing their lending capacity? ______
(*b*) What would happen to the money supply *initially* if the public deposited another $30 billion of cash in transactions accounts? ______
(*c*) What would the lending capacity of the banking system be after such a portfolio switch? ______
(*d*) How large would the money supply be if the banks fully utilized their lending capacity? ______
(*e*) What three steps could the Fed take to offset that potential growth in M1? ______

______

______

LO14-3 7. Assume that a $1,000 bond issued in 2012 pays $100 in interest each year. What is the current yield on the bond if it can be purchased for

(*a*) $1,200? ______
(*b*) $1,000? ______
(*c*) $800? ______

LO14-3 8. Suppose a $1,000 bond pays $50 per year in interest.

(*a*) What is the contractual interest rate ("coupon rate") on the bond? ______
(*b*) If market interest rates rise to 8 percent, what price will the bond sell for? ______

 Name: ______________________

LO14-3 9. What was the Fed's target for the fed funds rate in December 2008 (News, p. 306)? ________

LO14-3 10. If the GM bond described on pages 303–304 was resold for $1,500, what would its yield be? ________

LO14-3 11. Suppose a banking system with the following balance sheet has no excess reserves. Assume that banks will make loans in the full amount of any excess reserves that they acquire and will immediately be able to eliminate loans from their portfolio to cover inadequate reserves.

Assets (in Billions)		Liabilities (in Billions)	
Total reserves	$ 30	Transactions accounts	$400
Securities	190		
Loans	180		
Total	$400	Total	$400

(*a*) What is the reserve requirement? ________

(*b*) Suppose the reserve requirement is changed to 5 percent. Reconstruct the balance sheet of the total banking system after all banks have fully utilized their lending capacity.

Assets (in Billions)		Liabilities (in Billions)	
Total reserves	________	Transactions accounts	________
Securities	________		
Loans	________		
Total	________	Total	________

(*c*) By how much has the money supply changed as a result of the lower reserve requirement (step *b*)? ________

(*d*) Suppose the Fed now buys $10 billion of securities directly from the banks. What will the banks' books look like after this purchase?

Assets (in Billions)		Liabilities (in Billions)	
Total reserves	________	Transactions accounts	________
Securities	________		
Loans	________		
Total	________	Total	________

(*e*) How much excess reserves do the banks have now? ________

(*f*) By how much can the money supply now increase? ________

PROBLEMS FOR CHAPTER 15 Name: ____________________

LO15-1 1. In Table 15.1, what is the implied price of holding money in a checking account rather than in Treasury bonds? __________

LO15-2 2. Suppose home owners owe \$5 trillion in mortgage loans.

(*a*) If the mortgage interest rate is 7 percent, approximately how much are home owners paying in annual mortgage interest? __________

(*b*) If the interest rate drops to 6 percent, by how much will annual interest payments decline? __________

LO15-2 3. According to Bernanke's policy guide (p. 320), what was the fiscal policy equivalent of China's 2010 interest rate hike (World View, p. 321)

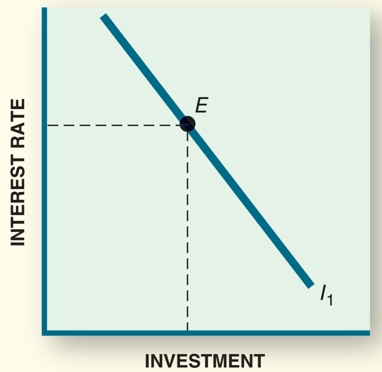
(*a*) Initially? __________

(*b*) Cumulatively? __________

LO15-2 4. Illustrate the effects on investment of

(*a*) An interest rate hike (point *A*).

(*b*) An interest rate hike accompanied by increased sales expectations (point *B*).



LO15-2 5. How much would the Fed have to reduce interest rates to get the same stimulus as President Obama's \$800 billion fiscal stimulus? __________

LO15-4 6. Suppose that an economy is characterized by

$$M = \$2 \text{ trillion}$$
$$V = 2.5$$
$$P = 1.0$$

(*a*) What is the real value of output (*Q*)? __________

Now assume that the Fed increases the money supply by 10 percent and velocity remains unchanged.

(*b*) If the price level remains constant, by how much will real output increase? ________%

(*c*) If, instead, real output is fixed at the natural level of unemployment, by how much will prices rise? ________%

(*d*) By how much would *V* have to fall to offset the increase in *M*? __________

LO15-1 7. If the nominal rate of interest is 5 percent and the real rate of interest is 3 percent, what rate of inflation is anticipated? __________

LO15-2 8. Suppose the Fed decided to purchase \$50 billion worth of government securities in the open market. What impact would this action have on the economy? Specifically, answer the following questions:

(*a*) How will M1 be affected initially? __________

(*b*) By how much will the banking system's lending capacity increase if the reserve requirement is 25 percent? __________

(*c*) Must interest rates rise or fall to induce investors to utilize this expanded lending capacity? __________

(*d*) By how much will aggregate demand increase if investors borrow and spend all the newly available credit? __________

(*e*) Under what circumstances (A = "recession" or B = "inflation") would the Fed be pursuing such an open market policy? __________

(*f*) To attain those same objectives, what should the Fed do (A = "increase" or B = "decrease") with the

(*i*) Discount rate? __________

(*ii*) Reserve requirement? __________

PROBLEMS FOR CHAPTER 15 (cont'd) Name: ____________

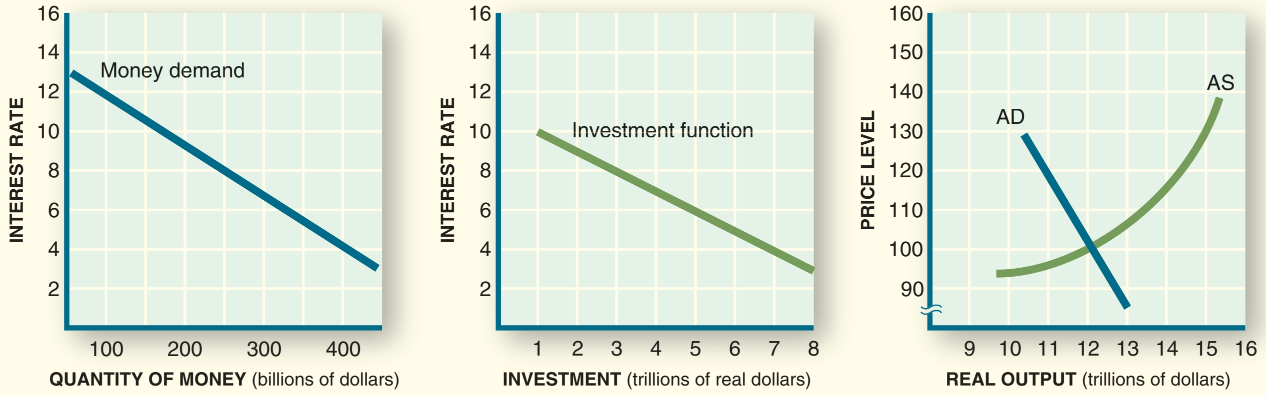
LO15-2 9. According to Bernanke's rule of thumb (p. 320), how much fiscal stimulus would be equivalent to a 2-point reduction in long-term interest rates? ________

LO15-3 10. The following data describe market conditions:

Money supply (in billions)	\$100	\$200	\$300	\$400	\$ 500	\$ 600	\$ 700
Interest rate	8.0	7.5	7.0	6.5	6.0	5.5	5.5
Rate of investment (in billions)	\$ 12	\$ 12	\$ 15	\$ 16	\$16.5	\$16.5	\$16.5

(*a*) At what rate of interest does the liquidity trap emerge? ________
(*b*) At what rate of interest does investment demand become totally inelastic? ________

LO15-3 11. Use the accompanying graphs to show what happens in the economy when *M* increases from \$300 billion to \$400 billion.
(*a*) By how much does *PQ* change if *V* is constant? ________
(*b*) If aggregate supply were fixed (vertical) at the initial output level, what would happen to the price level? ________
(*c*) What is the value of *V*? ________



LO15-1 12. Use the data on the end covers of this text to determine for 2007 and 2010

	2007	2010
(*a*) The interest rate on 10-year Treasury bonds.	________	________
(*b*) The U.S. inflation rate.	________	________
(*c*) The real rate of interest.	________	________

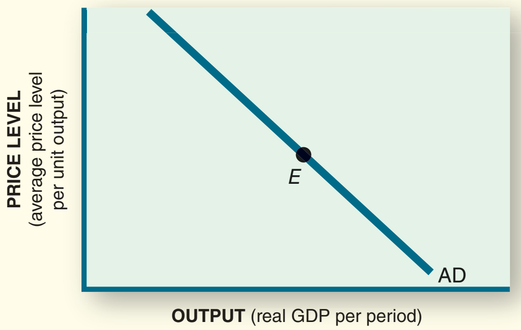
PROBLEMS FOR CHAPTER 16

Name: ____________________

LO16-1 1. On the following graph, draw the (*A*) Keynesian, (*B*) monetarist, and (*C*) hybrid AS curves, all intersecting AD at point *E*. If AD shifts rightward, which AS curve (*A*, *B*, or *C*) generates

(*a*) The biggest increase in output? ________

(*b*) The biggest increase in prices? ________



LO16-1 2. Which AS curve (*a*, *b*, or *c*) in Figure 16.1 causes the least unemployment when fiscal or monetary restraint is pursued? ________

LO16-1 3. The Economy Tomorrow section provides estimates of time spent in traffic delays. If the average worker produces \$90 of output per hour, what is the opportunity cost of

(*a*) Current traffic delays? \$________

(*b*) Estimated delays in 10 years? \$________

LO16-3 4. Suppose taxpayers are required to pay a base tax of \$50 plus 30 percent on any income over \$100, as in the initial tax system *B* in Table 16.1. Suppose further that the taxing authority wishes to raise by \$40 the taxes of people with incomes of \$200.

(*a*) If marginal tax rates are to remain unchanged, what will the new base tax have to be? \$________

(*b*) If the base tax of \$50 is to remain unchanged, what will the marginal tax rate have to be? ________%

LO16-3 5. Suppose households supply 520 billion hours of labor per year and have a tax elasticity of supply of 0.20. If the tax rate is increased by 10 percent, by how many hours will the supply of labor decline? ________

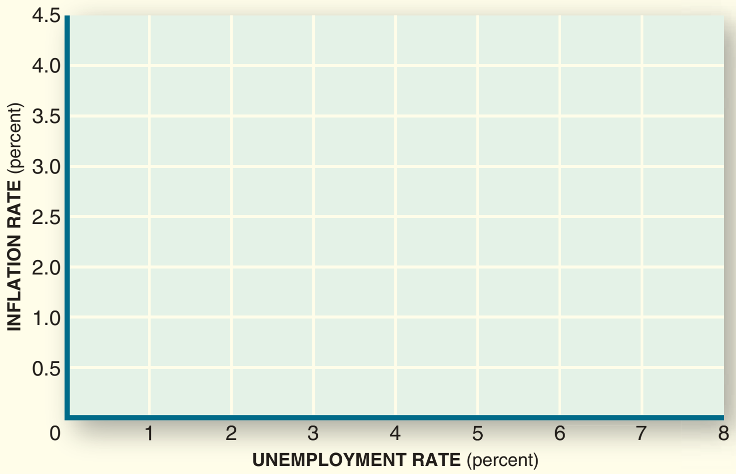
LO16-3 6. By how much did the disposable income of rich people increase as a result of the 2001–2004 reduction in the top marginal tax rate from 39.6 to 35 percent? Assume they have \$2 trillion of gross income in the highest bracket. ________

LO16-2 7. According to Figure 16.6, what inflation rate would occur if the unemployment rate rose to 6 percent, with

(*a*) PC_1? ________

(*b*) PC_2? ________

LO16-2 8. On the following graph, plot the unemployment and inflation rates for the years 2000–2010 using the data from this book's end covers. Is there any evidence of a Phillips curve trade-off? ________

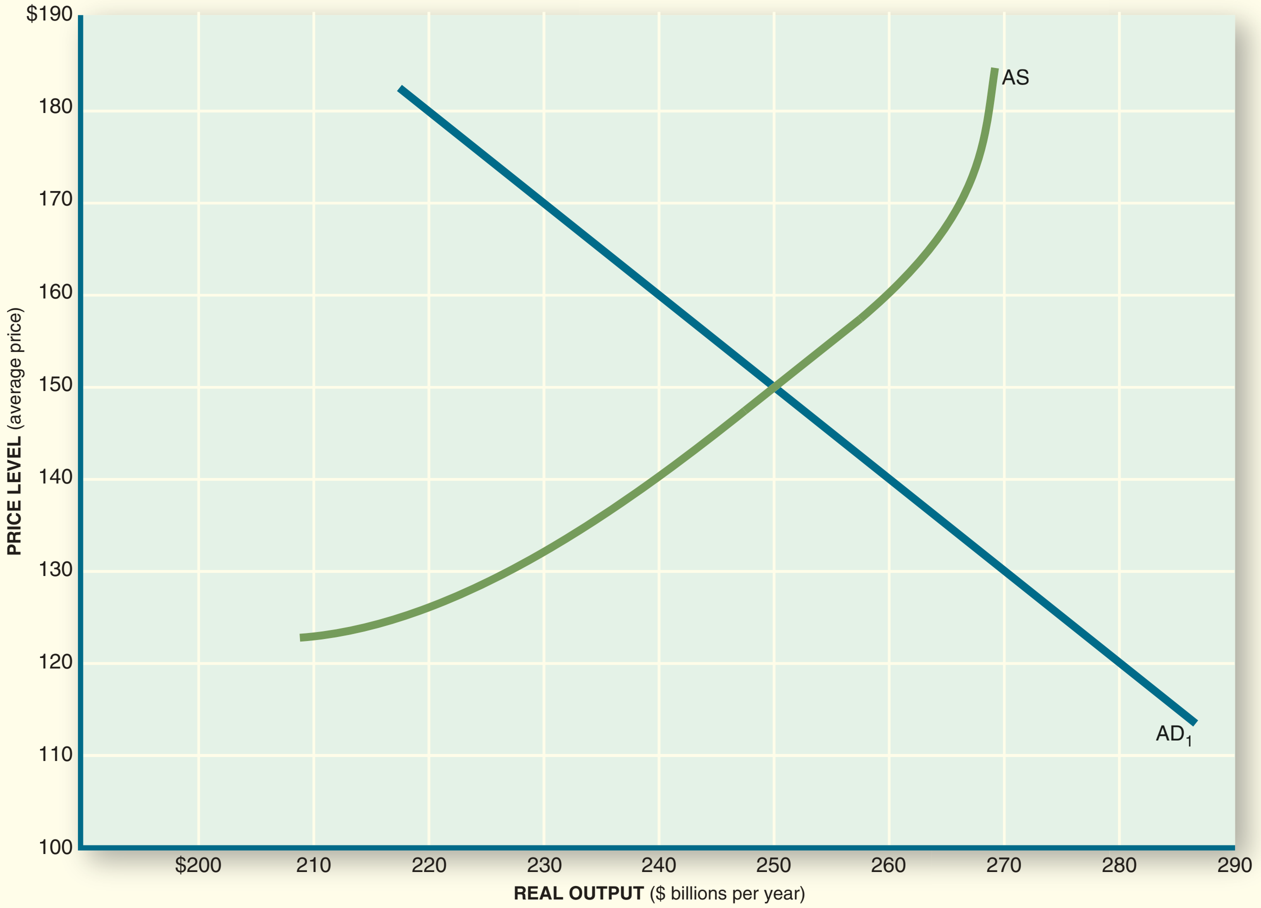


 Name: ______________________

LO16-3 9. If the tax elasticity of labor supply is 0.15, by what percentage will the quantity of labor supplied increase in response to
(*a*) A $500 per person income tax rebate? ________%
(*b*) A 4 percent reduction in marginal tax rates? ________%

LO16-3 10. If the tax elasticity of supply is 0.16, by how much do tax rates have to be reduced to increase the labor supply by 2 percent? ________

LO16-3 11. Suppose an economy is characterized by the AS/AD curves in the accompanying graph. A decision is then made to increase infrastructure spending by $10 billion a year.
(*a*) Illustrate the direct impact of the increased spending on aggregate demand on the graph (ignore multiplier effects).
(*b*) If AS is unaffected, what is the new equilibrium rate of output? ________
(*c*) What is the new equilibrium price level? ________
(*d*) Now assume that the infrastructure investments increase aggregate supply by $20 billion a year (from the initial equilibrium). Illustrate this effect on the graph.
(*e*) After both demand and supply adjustments occur, what is the final equilibrium
(*i*) Rate of output? ________
(*ii*) Price level? ________



PROBLEMS FOR CHAPTER 17

Name: ____________________

connect ECONOMICS

LO17-1 1. According to the Rule of 72 (Table 17.1), how many years will it take for GDP to double if the economy is growing at

(*a*) 1.5 percent a year? ________

(*b*) 2.8 percent a year? ________

LO17-1 2. According to the Rule of 72 (Table 17.1) and recent growth rates (World View, p. 373) how long will it be before GDP doubles in

(*a*) The United States? ________

(*b*) China? ________

(*c*) Ivory Coast? ________

LO17-1 3. How much *more* output will the average American (U.S. population = 310 million) have a year from now if the $15 trillion GDP grows by

(*a*) 0 percent? ________

(*b*) 1 percent? ________

(*c*) 3.5 percent? ________

LO17-3 4. According to Figure 17.3, in how many years since 1970 has GDP grown

(*a*) Faster than the population (1.1 percent growth)? ________

(*b*) Slower than the population? ________

LO17-1 5. If the labor force increases by 1.1 percent each year and productivity increases by 3.4 percent, how fast will output grow? ________

LO17-1 6. In 2011, approximately 59 percent of the adult population (230 million) was employed. If the employment rate increased to 62 percent,

(*a*) How many more people would be working? ________

(*b*) By how much would output increase if per worker GDP were $105,000? ________

LO17-1 7. If output per worker is now $100,000 per year, how much will the average worker produce 10 years from now if productivity improves by

(*a*) 2.0 percent per year? ________

(*b*) 3.0 percent per year? ________

LO17-1 8. The real (inflation-adjusted) value of U.S. manufacturing output and related manufacturing employment was

	Output	Employment
2000	$1,625 billion	17,321,000
2010	$2,201 billion	11,580,000

(*a*) How many manufacturing jobs were lost between 2000 and 2010? ________

(*b*) How much did output increase? ________

(*c*) What was average manufacturing productivity (output per worker) in

(*i*) 2000? ________

(*ii*) 2010? ________

LO17-1 9. What is the annual rate of productivity advance implied by Moore's Law (News, p. 376)? ________

PROBLEMS FOR CHAPTER 17 (cont'd) Name: ______________________

LO17-2 10. Suppose that every additional five percentage points in the investment rate ($I \div$ GDP) boost economic growth by one percentage point. Assume also that all investment must be financed with consumer saving. The economy is now assumed to be fully employed at

GDP	$8 trillion
Consumption	6 trillion
Saving	1 trillion
Investment	1 trillion

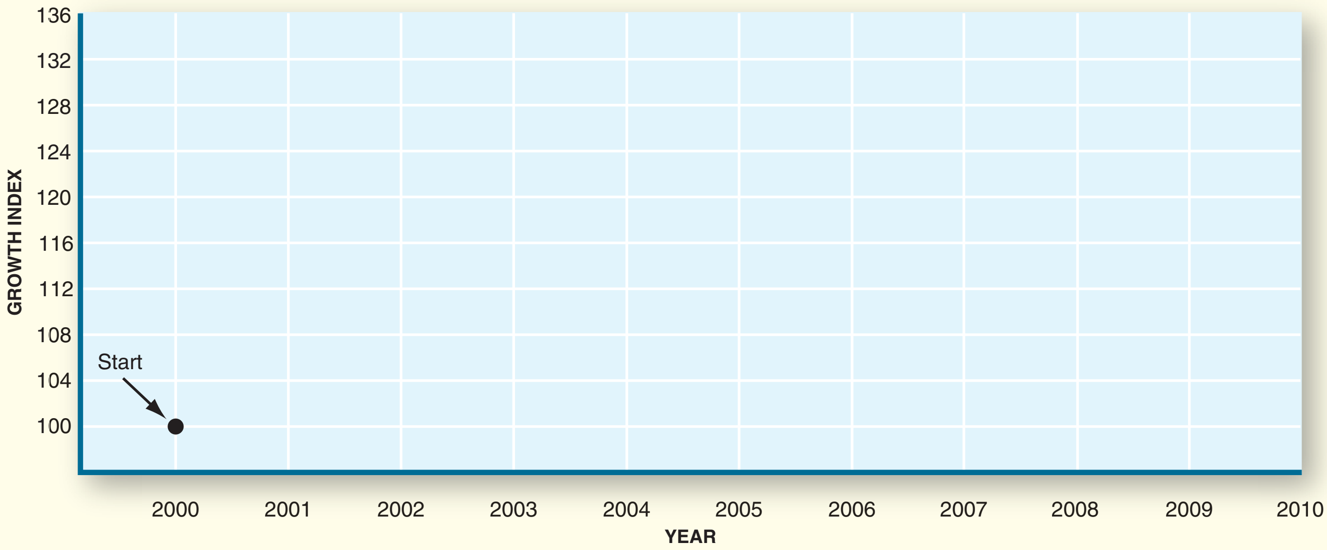
If the goal is to raise the growth rate by 1 percent,

(*a*) By how much must investment increase? __________

(*b*) By how much must consumption decline for this to occur? __________

LO17-3 11. Using data from the endpapers of this book, graph real GDP and population growth since 2000, setting 2000 values to an index base of 100.

Lowest __________



PROBLEMS FOR CHAPTER 18

Name: ______________________

LO18-3 1. If the Congressional Budget Office makes its average error this year, by how much will it underestimate next year's budget deficit? (See News, p. 400.) ________ %

LO18-1 2. If the unemployment rate stays two percentage points above full employment for an entire year,
(*a*) How many jobs will be lost in a labor force of 155 million? ________
(*b*) If the average worker produces \$105,000 of output, how much output will be lost? ________

LO18-1 3. According to the World View on page 394,
(*a*) Which country had the greatest macro misery in the 2000s? (Compute the "misery index" from Chapter 16.) ________
(*b*) Which country had the fastest growth? ________

LO18-1 4. What MPC for tax cuts is assumed in the News on page 401? ________

LO18-2 5. According to the News on page 401, what is the implied value of the multiplier for
(*a*) Increased unemployment benefits? ________
(*b*) Infrastructure spending? ________

LO18-3 6. The following table displays Congressional Budget Office forecasts of federal budget balances for the following fiscal year. Compare these forecasts with *actual* surplus and deficits for those same years (see Table 12.3 for data).

Year:	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Deficit forecast (in billions of dollars)	+161	+268	+176	−315	−480	−348	−314	−285	−155	−438

(*a*) In how many years was the CBO too optimistic (underestimating the deficit or overestimating the surplus)? ________
(*b*) In how many years was the CBO too pessimistic? ________

LO18-2 7. Complete the following chart by summarizing the policy prescriptions of various economic theories:

Policy Approach	Policy Prescription for: Recession	Inflation
Fiscal	________	________
Classical	________	________
Keynesian	________	________
Monetarist	________	________
Monetary	________	________
Keynesian	________	________
Monetarist	________	________
Supply side	________	________

PROBLEMS FOR CHAPTER 19

Name: ______________________

LO19-1 1. According to Table 19.1,

(*a*) With which box of popcorn does marginal utility first diminish? ________

(*b*) With which box does marginal utility become negative? ________

LO19-2 2. In Figure 19.4, how much consumer surplus is received by

(*a*) Hua? ________

(*b*) Carlos? ________

(*c*) John? ________

LO19-2 3. In Figure 19.4, if Blaise's maximum price threshold doubled,

(*a*) Would she buy a Spyder? ________

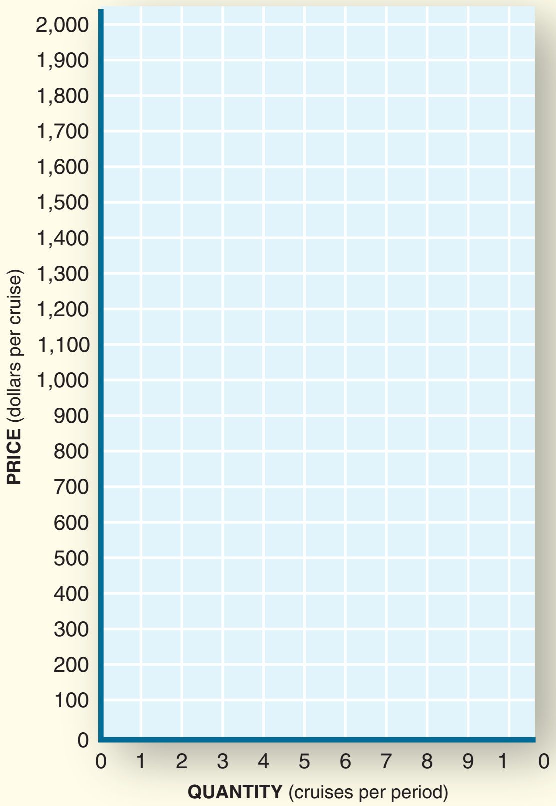
(*b*) How much consumer surplus would she have? ________

LO19-2 4. What is the combined consumer surplus for the four buyers above point *A* in Figure 19.4 if all the Spyders are sold for $845,500? ________

LO19-3 5. What is the total revenue (price × quantity) received by the car dealer in Figure 19.4 if he charges

(*a*) A uniform price of $800,000? ________

(*b*) Maximum individual prices to Fred, Michel, Hua, Carlos, and John? ________



LO19-3 6. The following data reveal how much each consumer is willing to pay for an Alaskan cruise:

Amy	$ 900	Ed	$2,000
Bob	$1,100	Gigi	$1,300
Carol	$1,500	Hugo	$1,800
Eduardo	$ 400	Isabelle	$1,500

(*a*) Draw the market demand for these eight consumers on the accompanying graph.

(*b*) If the cruise costs $1,000, how many passengers will there be? ________

(*c*) If the cruise costs $1,000, how much total revenue will be collected? ________

(*d*) If the cruise costs $1,000, how much consumer surplus will those passengers enjoy? ________

(*e*) If the cruise ship could perfectly price discriminate, how much more revenue could it take in? ________

LO19-4 7. Suppose movie downloads cost $2 apiece and game downloads cost $3. If the marginal utility of movie downloads at the optimal mix of consumption is 10 utils, what is the marginal utility of a game download? ________

LO19-1 8. Suppose the graph on the next page depicts the demand for football tickets at Grand University.

(*a*) What is total revenue at the price of $24? $ ________

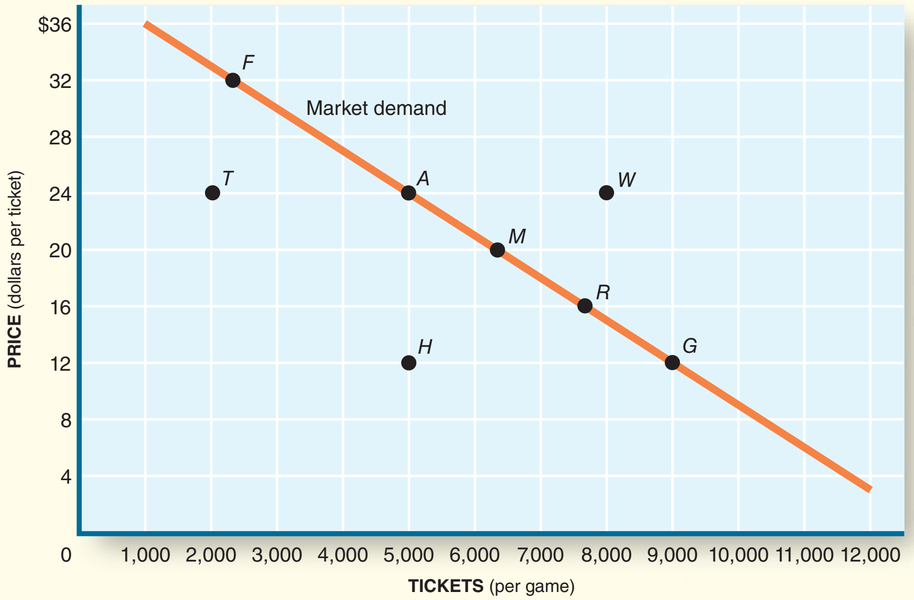
(*b*) If the price drops to $12, how many tickets would consumers purchase? ________

(*c*) What is total revenue at that point? $ ________

(*d*) If the team has a winning streak and the price is still $24, at what point do we end up? ________

(*e*) What is total revenue at that point? $ ________

 Name: ______________________________



LO19-4 9. Suppose the following table reflects the total satisfaction derived from consumption of pizza slices and Pepsis. Assume that pizza costs $1 per slice and a large Pepsi costs $2. With $20 to spend, what consumption mix will maximize satisfaction? _____ pizza slices and _____ large Pepsis

Quantity consumed	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Total units of pleasure from pizza slices	47	92	132	166	196	224	251	271	288	303	313	315	312	300
Total units of pleasure from Pepsis	111	200	272	336	386	426	452	456	444	408	340	217	92	−17

LO19-1 10. Use the following data to illustrate the relevant demand curve:

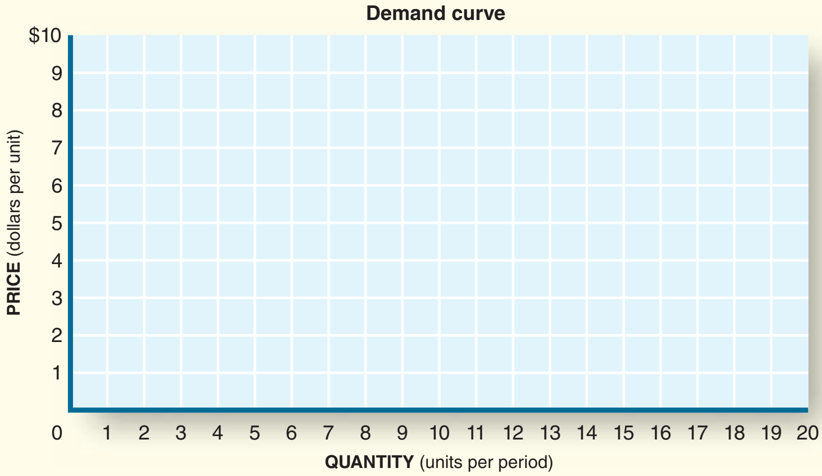
Price	$ 1	2	3	4	5	6	7	8	9	10
Quantity	20	18	16	14	12	10	8	6	4	2

(*a*) If the price increases from $4 to $8, by how much does the quantity demanded decline? __________

(*b*) If a successful advertising campaign increases the quantity demanded at every price by 4 units,

(*i*) Draw the new demand curve D_2.

(*ii*) How many units are now purchased at $8? __________



PROBLEMS FOR CHAPTER 20 Name: ____________________

LO20-1 1. By changing the denominator in each case, compute the percentage change in the iPhone's price (see text and News, p. 441), from
(a) The initial price. ________
(b) The final price. ________
(c) The average price. ________

LO20-1 2. What was the price elasticity of demand for iPhones in 2007 (News, p. 441)? ________

LO20-1 3. According to Professor Becker (News, p. 443), by how much would cigarette prices have to rise to get a 20 percent reduction in smoking in
(a) one year? ________%
(b) three years? ________%

LO20-1 4. Suppose consumers buy 30 million packs of cigarettes per month at a price of $4 per pack. If a $1 tax is added to that price,
(a) By what percentage does price change? (Use the midpoint formula on p. 439.) ________%
(b) By what percentage will cigarette sales decline in the short run? (See Table 20.1 for a clue.) ________%
(c) According to Gary Becker, by how much will sales decline in the long run? (News, p. 443.) ________%

LO20-2 5. From Figure 20.1, compute (a) the price elasticity between each of the following points and (b) the total revenue at each point.

	Price Elasticity		Total Revenue
Point *D* to *E*	________	At point *D*	________
		E	________
G to *H*	________	*G*	________
		H	________

LO20-1 6. If the price of a pack of cigarettes (including taxes) was $4 before the 2009 tax hike (see the News, p. 441),
(a) What was the price after the tax hike? ________
(b) What was the (average) percentage increase in price? ________
(c) What was the price elasticity of demand? ________

LO20-4 7. According to the calculation on pages 449–450, by how much will popcorn sales increase if average income goes up by 10 percent? ________%

LO20-3 8. If a gasoline price hike of 4 percent caused the SUV sales drop described in the News on page 448, what is the cross-price elasticity of demand between gasoline and SUVs? ________

LO20-3 9. If the cross-price elasticity of demand between printed textbooks and e-books is +.20,
(a) Are e-books and textbooks complementary (C) or substitute (S) goods? ________
(b) If textbook prices increase by 6 percent, by how much will e-book demand change? ________

LO20-5 10. Suppose that in a week the price of Greek yogurt increases from $1.25/lb to $1.75/lb. At the same time, the quantity of Greek yogurt supplied increases from 100,000 lbs to 150,000 lbs. What is the price elasticity of supply for Greek yogurt? ________

PROBLEMS FOR CHAPTER 20 (cont'd) Name: ____________________

LO20-2 11. Use the following data to illustrate the (*a*) demand curve and (*b*) total revenue curve:

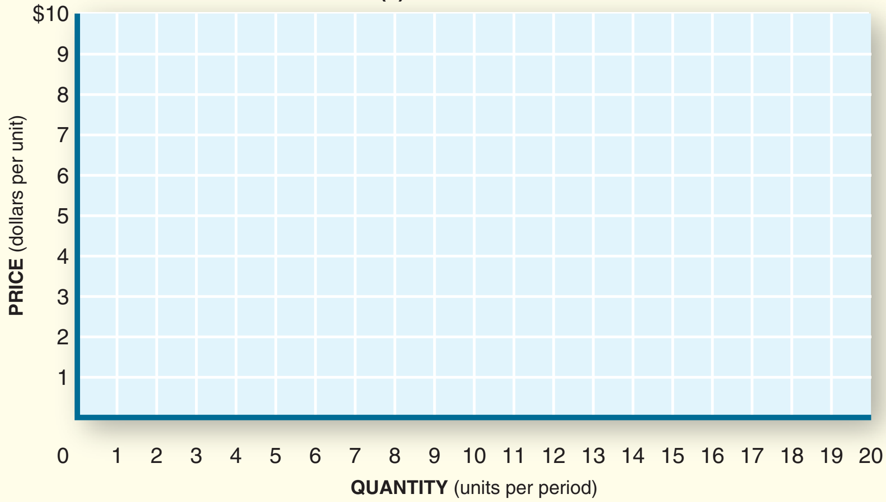
Price	$ 1	2	3	4	5	6	7	8	9	10
Quantity	20	18	16	14	12	10	8	6	4	2

(*a*) At what price is total revenue maximized? $__________

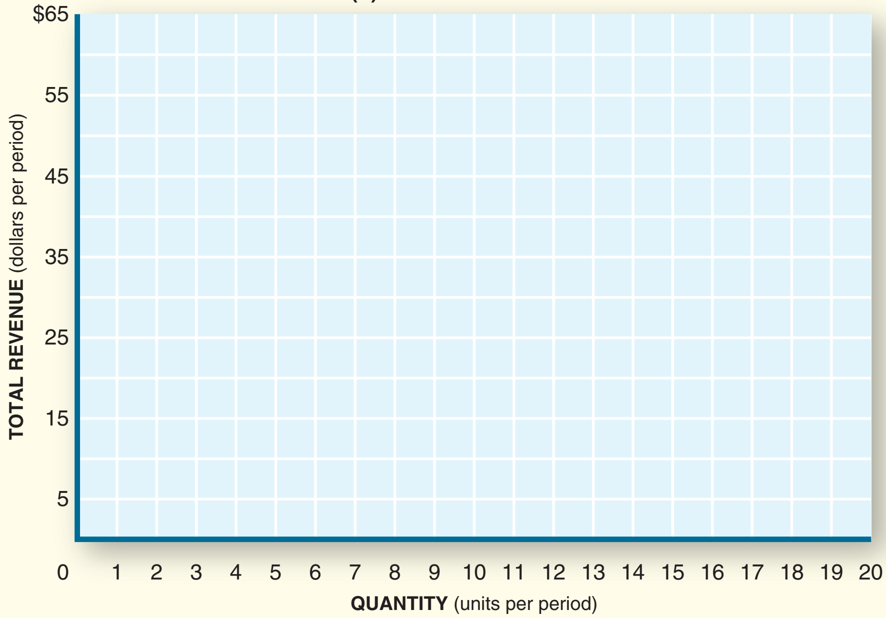
(*b*) At that price, what is the elasticity of demand? *E* = __________

(*c*) Between what prices is demand elastic? __________

(*a*) Demand curve

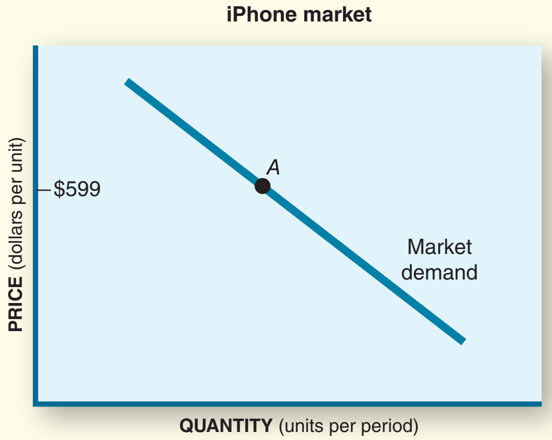


(*b*) Total revenue curve



 Name: ______________________________

LO20-3 12. On the graphs below, show the impact of the price reduction for iPhones, as described in the News on pages 441 and 447.



PROBLEMS FOR CHAPTER 21

Name: ______________________

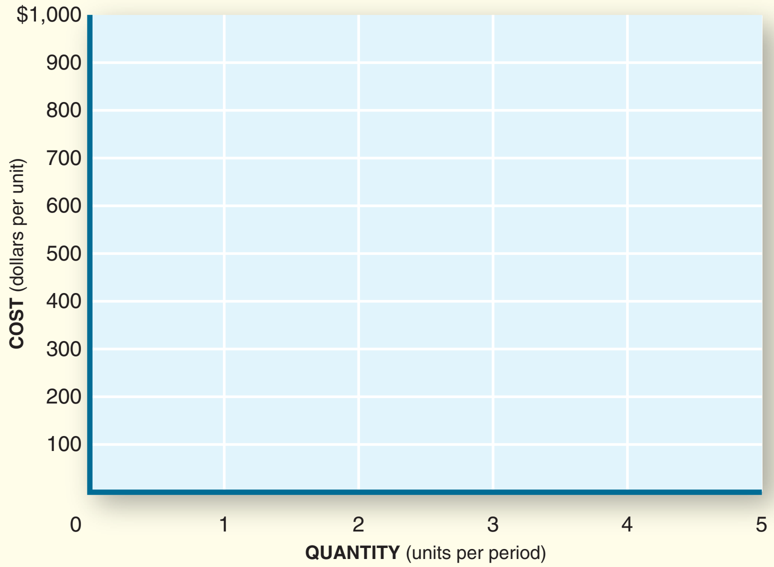
connect ECONOMICS

LO21-3 1. (*a*) Complete the following cost schedule:

Rate of Output	Total Cost	Marginal Cost	Average Fixed Cost	Average Variable Cost	Average Total Cost
0	$ 800	______	______	______	______
1	1,000	______	______	______	______
2	1,250	______	______	______	______
3	1,550	______	______	______	______
4	2,000	______	______	______	______
5	2,500	______	______	______	______

(*b*) Use the cost data to plot the ATC and MC curves on the accompanying graph.

(*c*) At what output rate is ATC minimized? (Use higher rate.) ______



LO21-5 2. Based on the News on page 474, what is the ATC per dollar of sales at

(*a*) The largest funeral home? ______

(*b*) Smaller funeral homes (based on the industry as a whole)? ______

LO21-4 3. Suppose a company incurs the following costs: labor, $600; equipment, $300; and materials, $200. The company owns the building, so it doesn't have to pay the usual $900 in rent.

(*a*) What is the total accounting cost? ______

(*b*) What is the total economic cost? ______

(*c*) If the company sold the building and then leased it back, what would be the change in

(*i*) Accounting costs? ______

(*ii*) Economic costs? ______

LO21-2 4. Refer to the production table for jeans (Table 21.1). Suppose a firm has two sewing machines and can vary only the amount of labor input.

(*a*) Graph the production function for jeans given the two sewing machines.

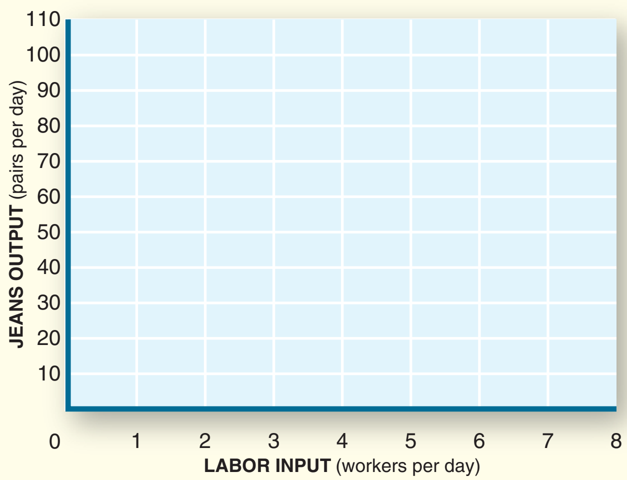
(*b*) Compute and graph the marginal physical product curve.

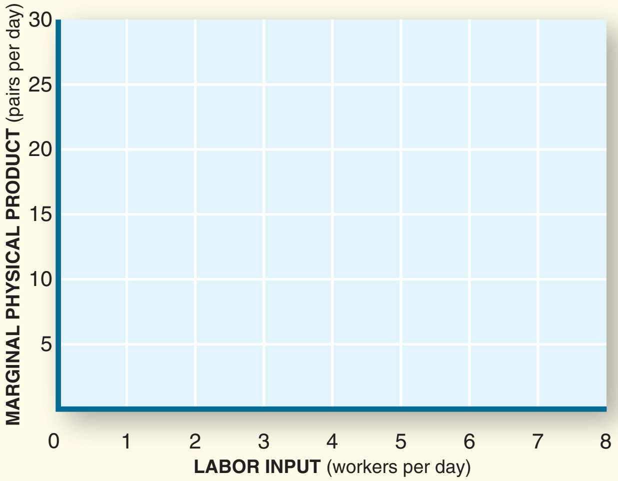
(*c*) At what amount of labor input does the law of diminishing returns first become apparent in your graph of marginal physical product? ______

(*d*) Is total output still increasing when MPP begins to diminish? ______

(*e*) When total output stops increasing, what is the value of MPP? ______

 Name: ______________________

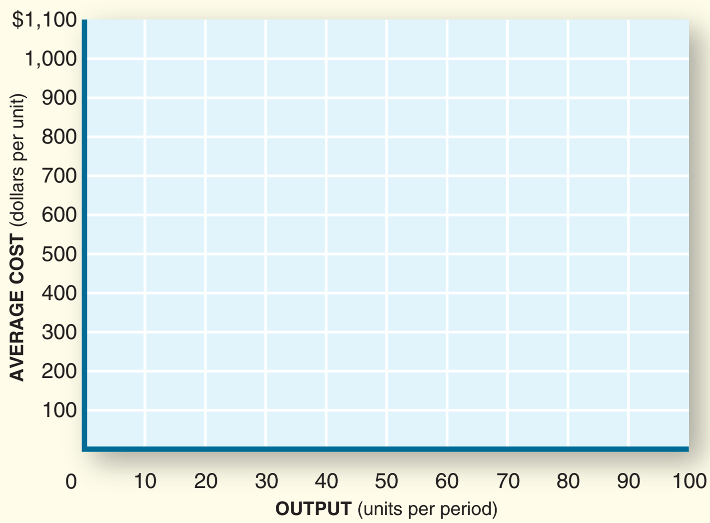




LO21-3 5. The following table indicates the average total cost of producing varying quantities of output from three different plants:

Rate of output	10	20	30	40	50	60	70	80	90	100
Average total cost										
Small firm	$ 600	$500	$400	$500	$600	$700	$800	$900	$1,000	$1,100
Medium firm	800	650	500	350	200	300	400	500	600	700
Large firm	1,000	900	800	700	600	500	400	300	400	500

(*a*) Plot the ATC curves for all three firms on the graph.
(*b*) Which plant(s) should be used to produce 40 units? ________
(*c*) Which plant(s) should be used to produce 100 units? ________
(*d*) Are there economies of scale in these plant size choices? ________



LO21-5 6. According to the World View on page 477, (*a*) which nation had the biggest loss of competitive position in years 2000–2009? (*b*) Which nation had the biggest gain?
(*a*) ________
(*b*) ________

LO21-1 7. Suppose (*A*) the hourly wage rate is $18 in the United States and $2 in China, and (*B*) productivity is 20 units per hour in the United States and 4 units per hour in China. What are unit labor costs in

(*a*) The United States? ________
(*b*) China? ________

PROBLEMS FOR CHAPTER 22

Name: __________________________

LO22-1 1. If the owner of the Table 22.1 drugstore hired a manager for $12 an hour to take his place, how much of a change would show up in

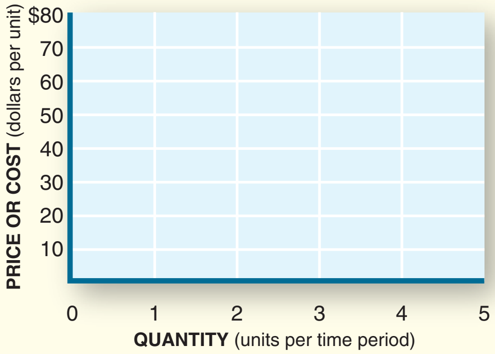
(*a*) Accounting profits? __________
(*b*) Economic profits? __________

LO22-1 2. If the price of catfish fell from $13 to $9 per bushel, use Figure 22.7 to determine the

(*a*) Profit-maximizing output. __________
(*b*) Profit or loss per bushel. __________
(*c*) Total profit or loss. __________

LO22-2 3. (*a*) Complete the following cost and revenue schedules:

Quantity	Price	Total Revenue	Total Cost	Marginal Cost
0	$60		$ 50	
1	60		70	
2	60		110	
3	60		170	
4	60		240	
5	60		320	



(*b*) Graph MC and *p*.
(*c*) What rate of output maximizes profit? __________
(*d*) What is MC at that rate of output? __________

LO22-2 4. Complete the following cost schedules:

Quantity	0	1	2	3	4	5	6	7
Total cost	$9	$12	$16	$21	$30	$40	$52	$66
ATC								
MC								

Assuming the price of this product is $10, at what output rate is

(*a*) Total revenue maximized? __________
(*b*) ATC minimized? __________
(*c*) Profit per unit maximized? __________
(*d*) Total profit maximized? __________

LO22-3 5. Assume that the price of silk ties in a perfectly competitive market is $19 and that the typical firm confronts the following costs:

Quantity (ties per day)	0	1	2	3	4	5	6	7	8	9	10
Total cost	$10	$17	$26	$37	$50	$65	$82	$101	$122	$145	$170

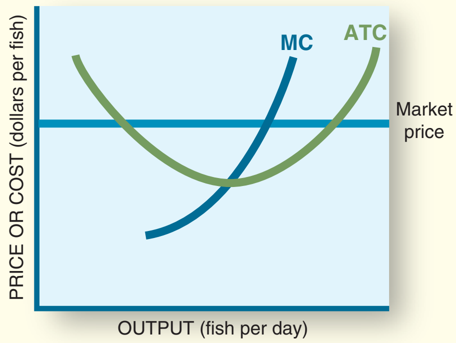
(*a*) What is the profit-maximizing rate of output for the firm? __________
(*b*) How much profit does the firm earn at that rate of output? __________
(*c*) If the price of ties fell to $15, how many ties should the firm produce? __________
(*d*) At what price should the firm shut down? __________

LO22-6 6. Using the data from Problem 5 (at the original price of $19), determine how many ties the producer would supply if

(*a*) A tax of $2 per tie were collected from the producer. __________
(*b*) A property tax of $2 were levied. __________
(*c*) Profits were taxed at 50 percent. __________

 Name: ______________________________

LO22-6 7. Illustrate on the accompanying graph the News on page 504.



LO22-4 8. Complete the following table:

Output	Total Cost	Marginal Cost	Average Total Cost	Average Variable Cost
0	$100	________	________	________
5	110	________	________	________
10	130	________	________	________
15	170	________	________	________
20	220	________	________	________
25	290	________	________	________
30	380	________	________	________
35	490	________	________	________

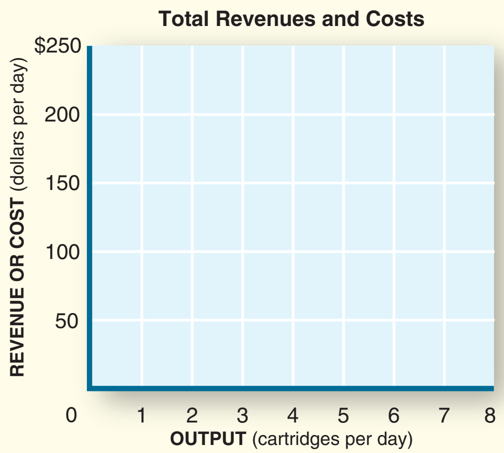
According to the table above,

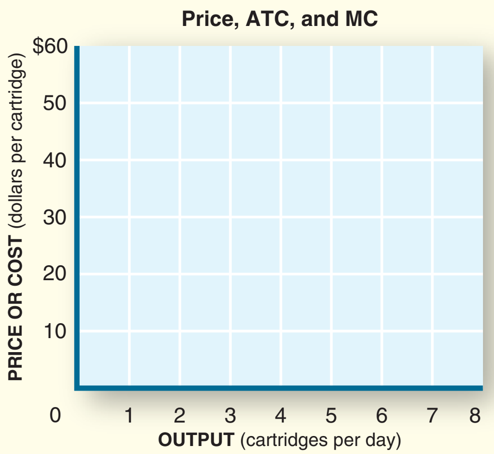
(*a*) If the price is $8, how much output will the firm supply? ________
(*b*) How much profit or loss will it make? ________
(*c*) At what price will the firm shut down? ________

LO22-5 9. A firm has leased plant and equipment to produce video game cartridges, which can be sold in unlimited quantities at $21 each. The following figures describe the associated costs of production:

Rate of output (per day)	0	1	2	3	4	5	6	7	8
Total cost (per day)	$50	$55	$62	$75	$96	$125	$162	$203	$248

(*a*) How much are fixed costs? ________
(*b*) Draw total revenue and cost curves on the graphs here.
(*c*) Draw the average total cost (ATC), marginal cost (MC), and demand curves of the firm.
(*d*) What is the profit-maximizing rate of output? ________
(*e*) Should the producer stay in business? ________
(*f*) What is the size of the loss if production continues? ________
(*g*) How much is lost if the firm shuts down? ________





PROBLEMS FOR CHAPTER 23

Name: ______________________________

LO23-3 1. According to the News on page 524,

(*a*) How many years elapsed between IBM's entry and exit of the home computer market? ________

(*b*) By what percentage did IBM cut the price of its low-end computer in a single year? ________

LO23-2 2. According to Table 23.1,

(*a*) What were the fixed costs of production for the firm? ________

(*b*) At what rate of output was profit per computer maximized? (Choose the highest output level.) ________

(*c*) At what output rate was total profit maximized? ________

LO23-1 3. Suppose the following data summarize the costs of a perfectly competitive firm:

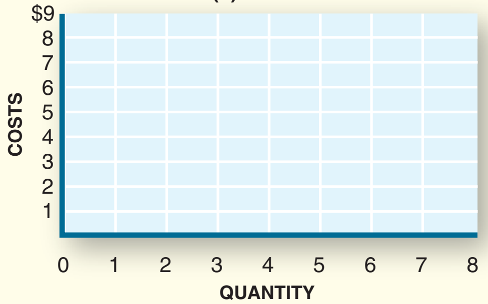
Quantity	0	1	2	3	4	5	6	7	8
Total cost	$100	101	103	106	110	115	121	128	136

(*a*) Draw the firm's MC curve on the graph on the left here.

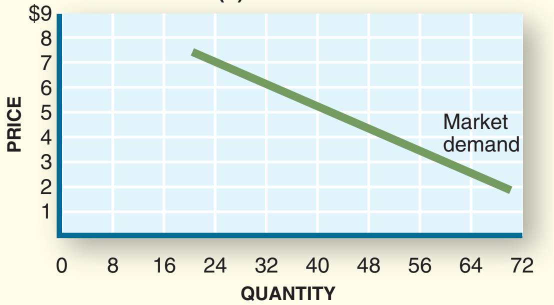
(*b*) Draw the market supply curve on the right graph, assuming 8 firms identical to the one just described.

(*c*) What is the equilibrium price in this market? ________

(*a*) The firm



(*b*) The market



LO23-1 4. Suppose the following data describe the demand for liquid-diet beverages:

Price	$11	$10	$9	$8	$7	$6	$5	$4	$3	$2
Quantity demanded	7	10	13	16	19	22	25	28	31	34

Five identical, perfectly competitive firms are producing these beverages. The cost of producing these beverages at each firm is the following:

Quantity produced	0	1	2	3	4	5	6	7	8	9	10
Total cost	$5	$8	$10	$13	$17	$22	$28	$36	$45	$55	$67

(*a*) What price will prevail in this market? ________

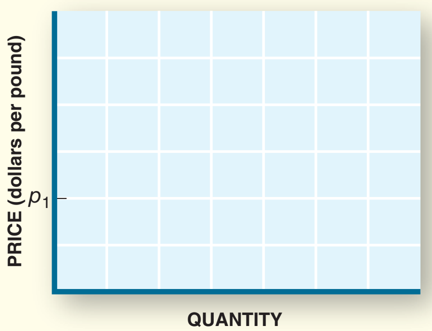
(*b*) What quantity is produced? ________

(*c*) How much profit (loss) does each firm make? ________

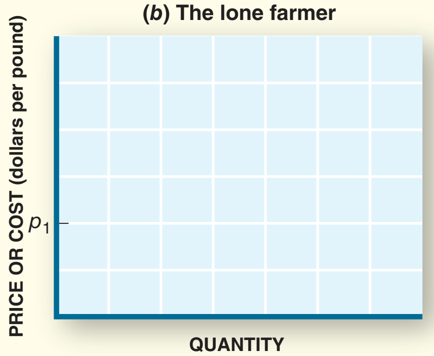
(*d*) What happens to price if two more identical firms enter the market? ________

LO23-3 5. Suppose the typical catfish farmer was incurring an economic loss at the prevailing price p_1. (*a*) Illustrate these losses on the firm and market graphs. (*b*) What forces would raise the price? (*c*) What price would prevail in long-term equilibrium? Illustrate your answers on the graphs.

(*a*) The market



(*b*) The lone farmer



 Name: ______________________

LO23-2 6. According to Table 23.1,
(*a*) What was the prevailing computer price in 1978? ________
(*b*) How much total profit did the typical firm earn? ________
(*c*) At what price would profits have been zero? ________
(*d*) At what price would the firm have shut down? ________

LO23-2 7. According to the World View on page 514,
(*a*) How many brands entered the flat-panel TV market between 2002 and 2007? ________
(*b*) What will economic profit be in the long run? ________
(*c*) Will the number of firms producing TVs (A) increase, (B) decrease, or (C) stay the same between now and then? ________

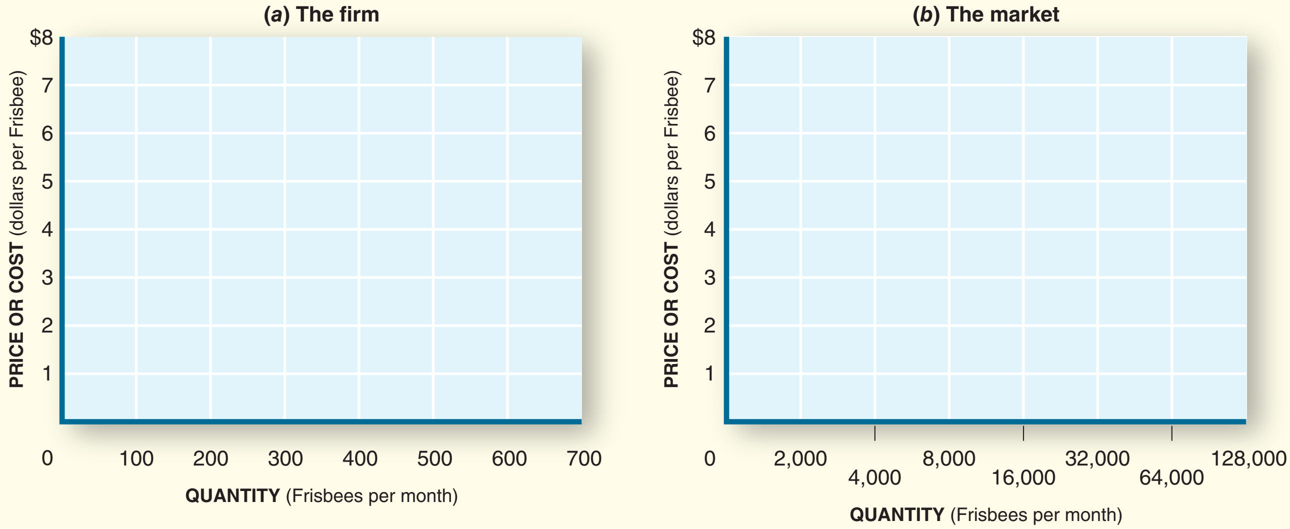
LO23-4 8. Suppose that the monthly market demand schedule for Frisbees is

Price	\$8	\$7	\$6	\$5	\$4	\$3	\$2	\$1
Quantity demanded	1,000	2,000	4,000	8,000	16,000	32,000	64,000	128,000

Suppose further that the marginal and average costs of Frisbee production for every competitive firm are

Rate of output	100	200	300	400	500	600
Marginal cost	\$2.00	\$3.00	\$4.00	\$5.00	\$6.00	\$7.00
Average total cost	2.00	2.50	3.00	3.50	4.00	4.50

Finally, assume that the equilibrium market price is \$6 per Frisbee.
(*a*) Draw the cost curves of the typical firm and identify its profit-maximizing rate of output and its total profits.
(*b*) Draw the market demand curve and identify market equilibrium.
(*c*) How many Frisbees are being sold? ________
(*d*) How many (identical) firms are initially producing Frisbees? ________
(*e*) How much profit is the typical firm making? ________
(*f*) In view of the profits being made, more firms will enter into Frisbee production, shift the market supply curve to the right, and push price down. At what equilibrium price are all profits eliminated? ________
(*g*) How many firms will be producing Frisbees at this long-term price? ________



PROBLEMS FOR CHAPTER 24 Name: ______________________

LO24-1 1. Use Figures 24.2 and 24.3 to answer the following questions:

(*a*) What is the highest price the monopolist could charge and still sell fish? ________

(*b*) What is total revenue at that highest price? ________

(*c*) What rate of output maximizes total revenue? ________

(*d*) What rate of output maximizes total profit? ________

(*e*) What is MR at that rate of output? ________

(*f*) What is the price at the profit-maximizing rate of output? ________

LO24-1 2. (*a*) Complete the following table:

Price	$24	$21	$18	$15	$12	$9	$6	$3
Quantity demanded	1	2	3	4	5	6	7	8
Marginal revenue	____	____	____	____	____	____	____	____

(*b*) If marginal cost is constant at $6, what is the profit-maximizing rate of output? ________

(*c*) What price should be charged at that rate of output? ________

LO24-1 3. The following table indicates the prices various buyers are willing to pay for a MiniCooper car:

Buyer	Maximum Price	Buyer	Maximum Price
Buyer A	$60,000	Buyer D	$30,000
Buyer B	50,000	Buyer E	20,000
Buyer C	40,000	Buyer F	10,000

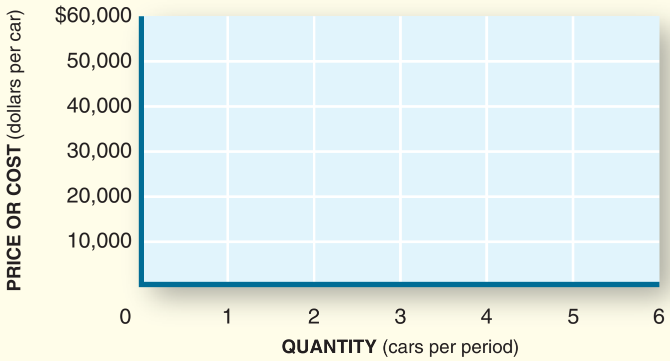
The cost of producing the cars includes $50,000 of fixed costs and a constant marginal cost of $10,000.

(*a*) Graph below the demand, marginal revenue, and marginal cost curves.

(*b*) What is the profit-maximizing rate of output and price for a monopolist? How much profit does the monopolist make?
Output ________
Price ________
Profit ________

(*c*) If the monopolist can price discriminate, how many cars will he sell? ________

(*d*) How much profit will he make? ________



LO24-2 4. If the on-campus demand for soda is as follows:

Price (per can)	$0.25	0.50	0.75	1.00	1.25	1.50	1.75	2.00
Quantity demanded (per day)	100	90	80	70	60	50	40	30

and the marginal cost of supplying a soda is 50 cents, what price will students end up paying in

(*a*) A perfectly competitive market? ________

(*b*) A monopolized market? ________

PROBLEMS FOR CHAPTER 24 (cont'd) Name: ______________________________

LO24-3 5. According to the News on page 550,

(*a*) What was the annual cost saving for the rocket monopoly (in $ millions)? __________

(*b*) How much of this saving did the FTC expect to be reflected in reduced rocket prices? __________

(*c*) According to economic theory, which is likely to be higher, A: the merged monopoly price; or B: the 2-firm competitive price? __________

LO24-2 6. By how much did the price of the heart drug for babies increase when a monopoly was established (News, p. 545)? $ __________

LO24-2 7. The following table summarizes the weekly sales and cost situation confronting a monopolist:

Price	Quantity Demanded	Total Revenue	Marginal Revenue	Total Cost	Marginal Cost	Average Total Cost
$20	0			$ 6		
18	1			12		
16	2			20		
14	3			30		
12	4			42		
10	5			56		
8	6			72		

(*a*) Complete the table.

(*b*) Graph the demand, MR, and MC curves on the following graph.

(*c*) At what rate of output is total revenue maximized within this range? __________

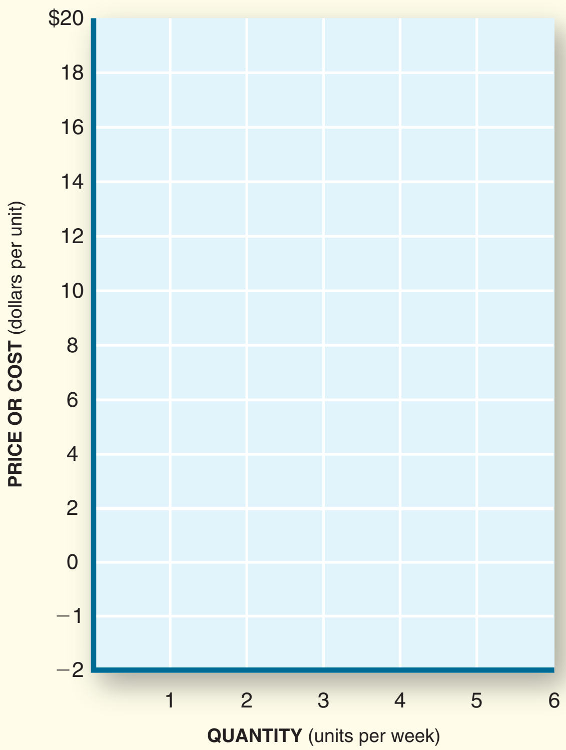
(*d*) What are the values of MR and MC at the revenue-maximizing rate of output? MR __________ MC __________

(*e*) At what rate of output are profits maximized within this range? __________

(*f*) What are the values of MR and MC at the profit-maximizing rate of output? MR __________ MC __________

(*g*) What are total profits at that output rate? __________

(*h*) If a competitive industry confronted the same demand and costs, how much output would it produce in the short run? __________



PROBLEMS FOR CHAPTER 25

Name: ______________________________

connect ECONOMICS

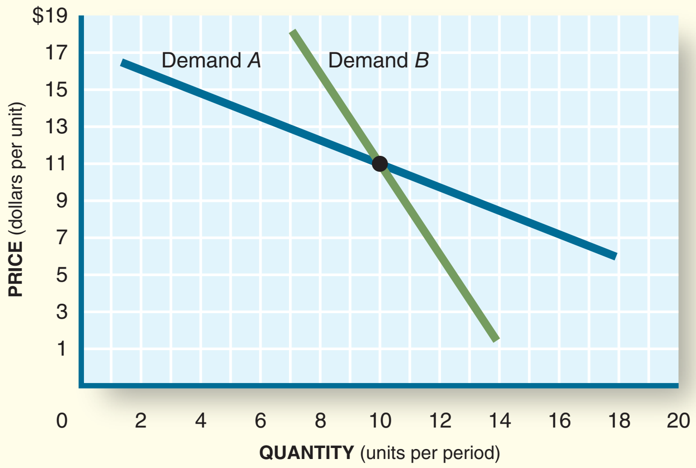
LO25-1 1. According to Table 25.2, in how many markets do fewer than four firms produce at least 80 percent of total output? __________

LO25-2 2. According to the News on page 566,

(*a*) What is the concentration ratio in the U.S. soda market? __________

(*b*) What is the *maximum* value of the Herfindahl-Hirshman Index? __________

LO25-3 3. Assume an oligopolist confronts *two* possible demand curves for its own output, as illustrated here. The first (*A*) prevails if other oligopolists don't match price changes. The second (*B*) prevails if rivals *do* match price changes.



(*a*) By how much does quantity demanded increase if the price is reduced from \$11 to \$9 and

(*i*) Rivals match the price cut? __________

(*ii*) Rivals don't match the price cut? __________

(*b*) By how much does quantity demanded change when the price is raised from \$11 to \$13 and

(*i*) Rivals match the price hike? __________

(*ii*) Rivals don't match the price hike? __________

LO25-3 4. How large would the probability of a "don't match" outcome have to be to make a Universal price cut statistically worthwhile? (See expected payoff, p. 570.) __________

LO25-3 5. Suppose the payoff to each of four strategic interactions is as follows:

	Rival Response	
Action	**Reduce Price**	**Don't Reduce Price**
Reduce price	Loss = \$400	Gain = \$30,000
Don't reduce price	Loss = \$5,000	No loss or gain

(*a*) If the probability of rivals matching a price reduction is 98 percent, what is the expected payoff of a price cut? __________

(*b*) If the probability of rivals reducing price even though you don't is 5 percent, what is the expected payoff of *not* reducing price? __________

 Name: ______________________

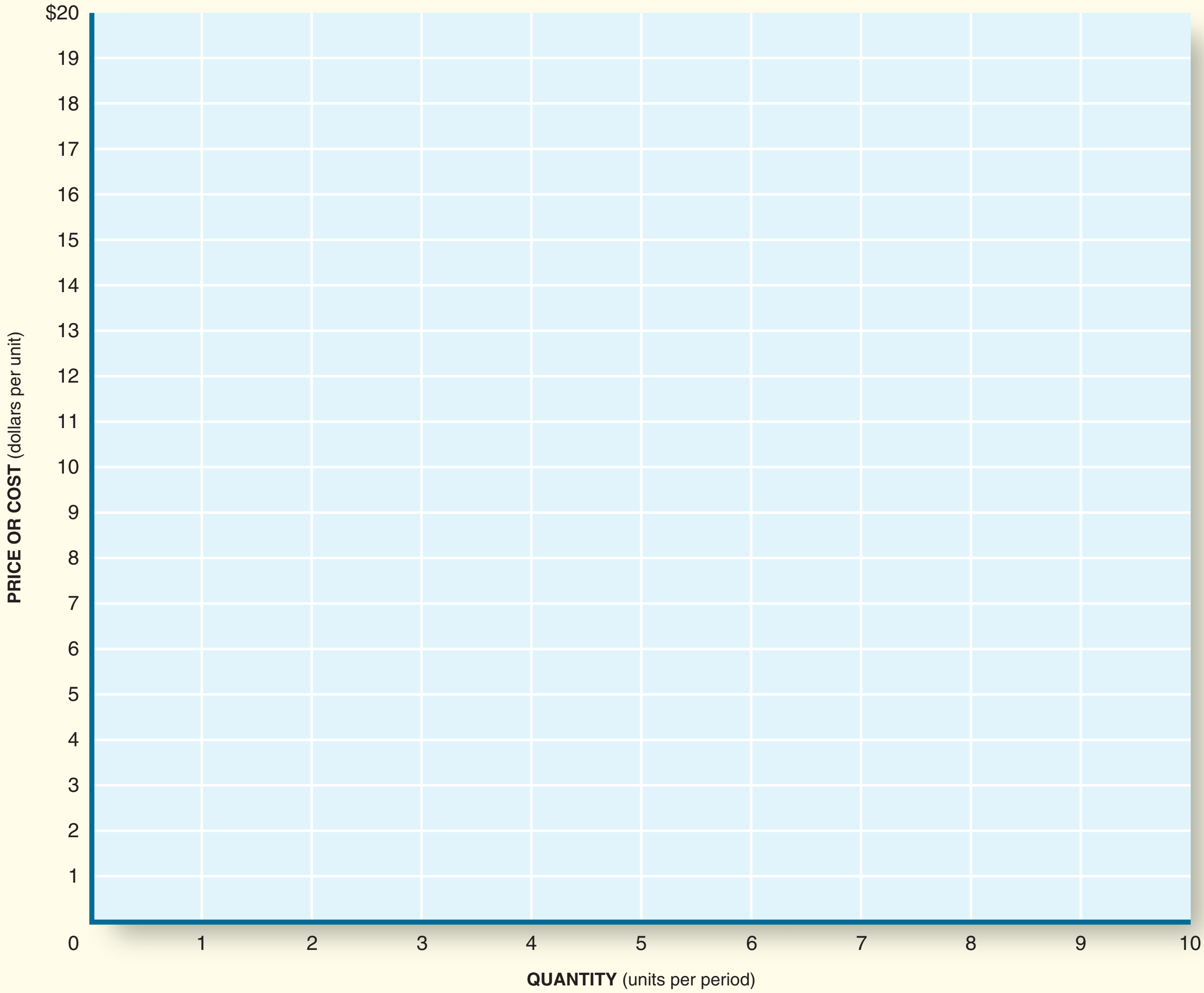
LO25-2 6. Suppose that the following schedule summarizes the sales (demand) situation confronting an oligopolist:

Price (per unit)	$8	$10	$12	$14	$16	$17	$18	$19	$20
Quantity demanded (units per period)	10	9	8	7	6	5	4	3	2

Using the following graph,

(*a*) Draw the demand and marginal revenue curves facing the firm.

(*b*) Identify the profit-maximizing rate of output in a situation where marginal cost is constant at $11 per unit. ________



LO25-2 7. What is the price elasticity of demand between points *F* and *G* in Figure 25.2? ________

LO25-3 8. If the price elasticity of demand for oil is 0.2, by how much would oil prices have fallen in 2011 had OPEC increased output from 27 to 29 million barrels per day rather than holding output constant (World View, p. 572)? ________%

LO25-3 9. What is the maximum value of the HHI

(*a*) Before the AT&T/T-Mobile deal? ________

(*b*) If AT&T buys T-Mobile? ________

Base your answers on these 2011 cell phone market shares:

AT&T 38.3% Verizon 31.3% Sprint 15.9% T-Mobile 12.2% Other 2.3%

PROBLEMS FOR CHAPTER 26

Name: ____________________

connect ECONOMICS

LO26-1 1. What is the concentration ratio in an industry with the following market shares?

Firm A	11.1	Firm C	5.2	Firm E	3.6	Firm G	1.6
Firm B	7.6	Firm D	4.0	Firm F	2.2	Other firms	64.7

LO26-2 2. If Starbucks raises its price by 6 percent and McDonald's experiences a 0.4 percent increase in demand for its coffee, what is the cross-price elasticity of demand?

LO26-3 3. In Figure 26.3,

(*a*) At what output rate is economic profit equal to zero?

(*b*) At what output rate(s) are positive economic profits available?

(*c*) At what output rate(s) do economic losses occur?

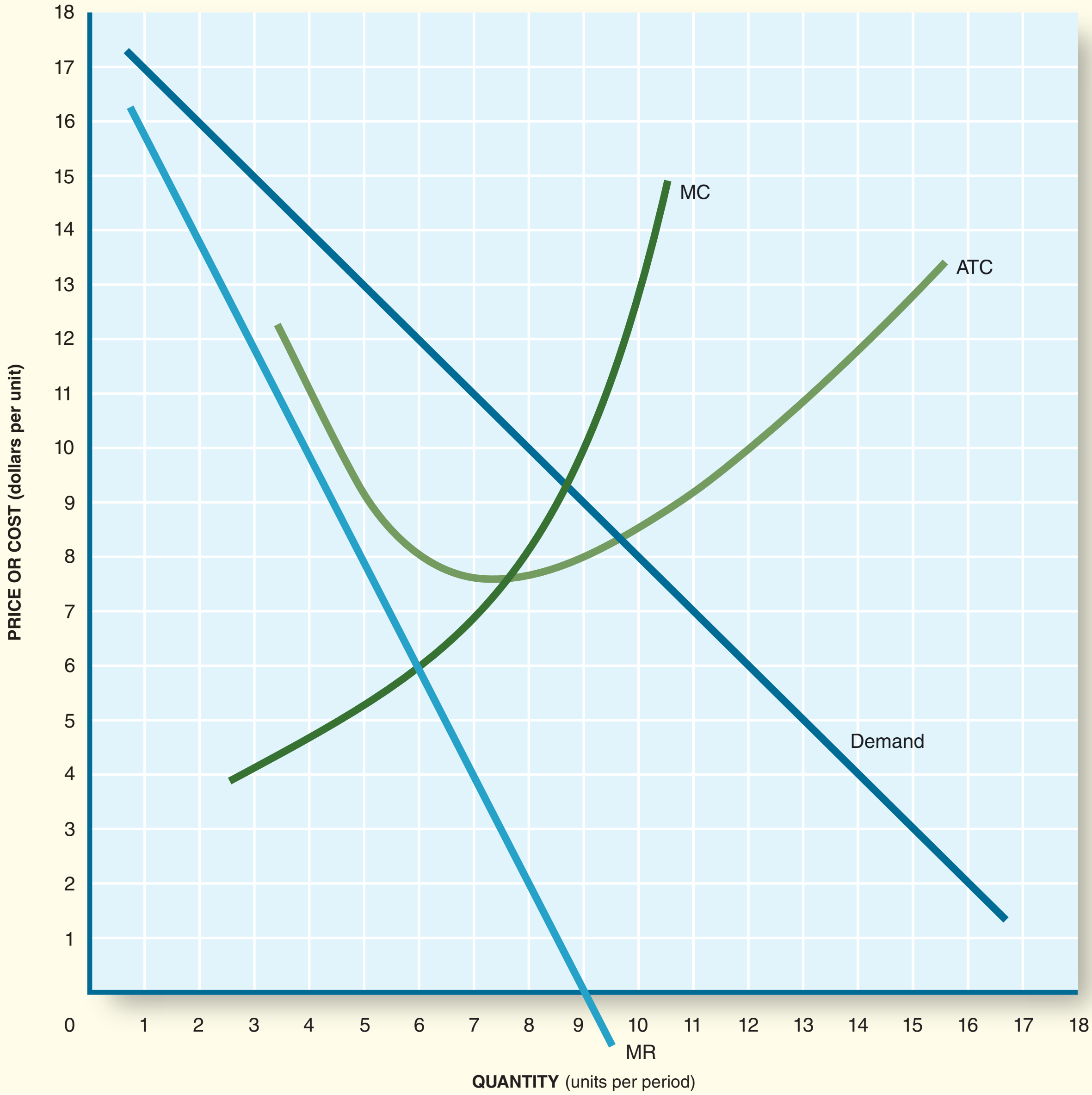
LO26-3 4. (*a*) Use the accompanying graph to illustrate the short-run equilibrium of a monopolistically competitive firm.

(*b*) At that equilibrium, what is

(*i*) Price?

(*ii*) Output?

(*iii*) Total profit?



 Name: ______________________

(*c*) Identify the long-run equilibrium of the same firm.

(*d*) In long-run equilibrium, what is (approximately)

(*i*) Price? ________

(*ii*) Output? ________

(*iii*) Total profit? ________

LO26-4 5. (*a*) In the *short*-run equilibrium of the previous problem, what is

(*i*) The price of the product? ________

(*ii*) The opportunity cost of producing the last unit? ________

(*b*) In the *long*-run equilibrium of the previous problem, what is

(*i*) The price of the product? ________

(*ii*) The opportunity cost of producing the last unit? ________

LO26-1 6. According to the News on page 587,

(*a*) By how much could unit sales of coffee beans at Starbucks decline after the 2006 price increase without reducing total revenue? ________%

(*b*) If the price elasticity of demand for Starbucks was 0.20, by how much would coffee bean unit sales have fallen? ________%

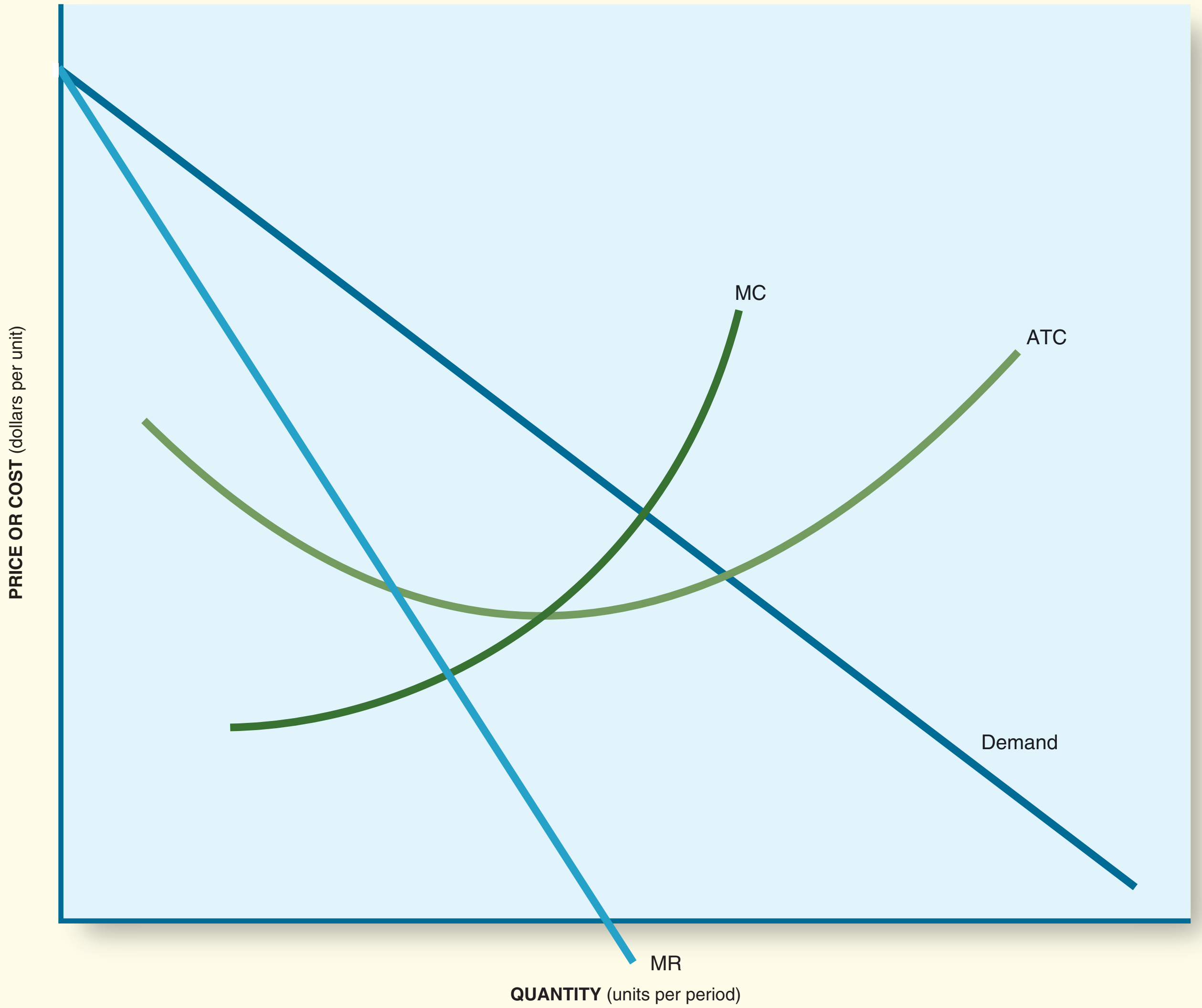
LO26-4 7. On the accompanying graph, identify each of the following *market* outcomes:

(*a*) Short-run equilibrium output in competition.

(*b*) Long-run equilibrium output in competition.

(*c*) Long-run equilibrium output in monopoly.

(*d*) Long-run equilibrium output in monopolistic competition.



PROBLEMS FOR CHAPTER 27

Name: ______________________________

LO27-2 1. In Figure 27.2,

(*a*) How much profit does an unregulated monopolist earn? __________

(*b*) How much profit would be earned if MC pricing were imposed? __________

LO27-1 2. Do total profits (A) decrease, (B) increase, or (C) stay the same when new technology reduces average total costs (shifts ATC downward in Figure 27.2) in

(*a*) An unregulated natural monopoly? __________

(*b*) A price-regulated natural monopoly? __________

(*c*) A profit-regulated natural monopoly? __________

LO27-2 3. Suppose a natural monopolist has fixed costs of \$24 and a constant marginal cost of \$2. The demand for the product is as follows:

Price (per unit)	\$10	\$9	\$8	\$7	\$6	\$5	\$4	\$3	\$2	\$1
Quantity demanded (units per day)	0	2	4	6	8	10	12	14	16	18

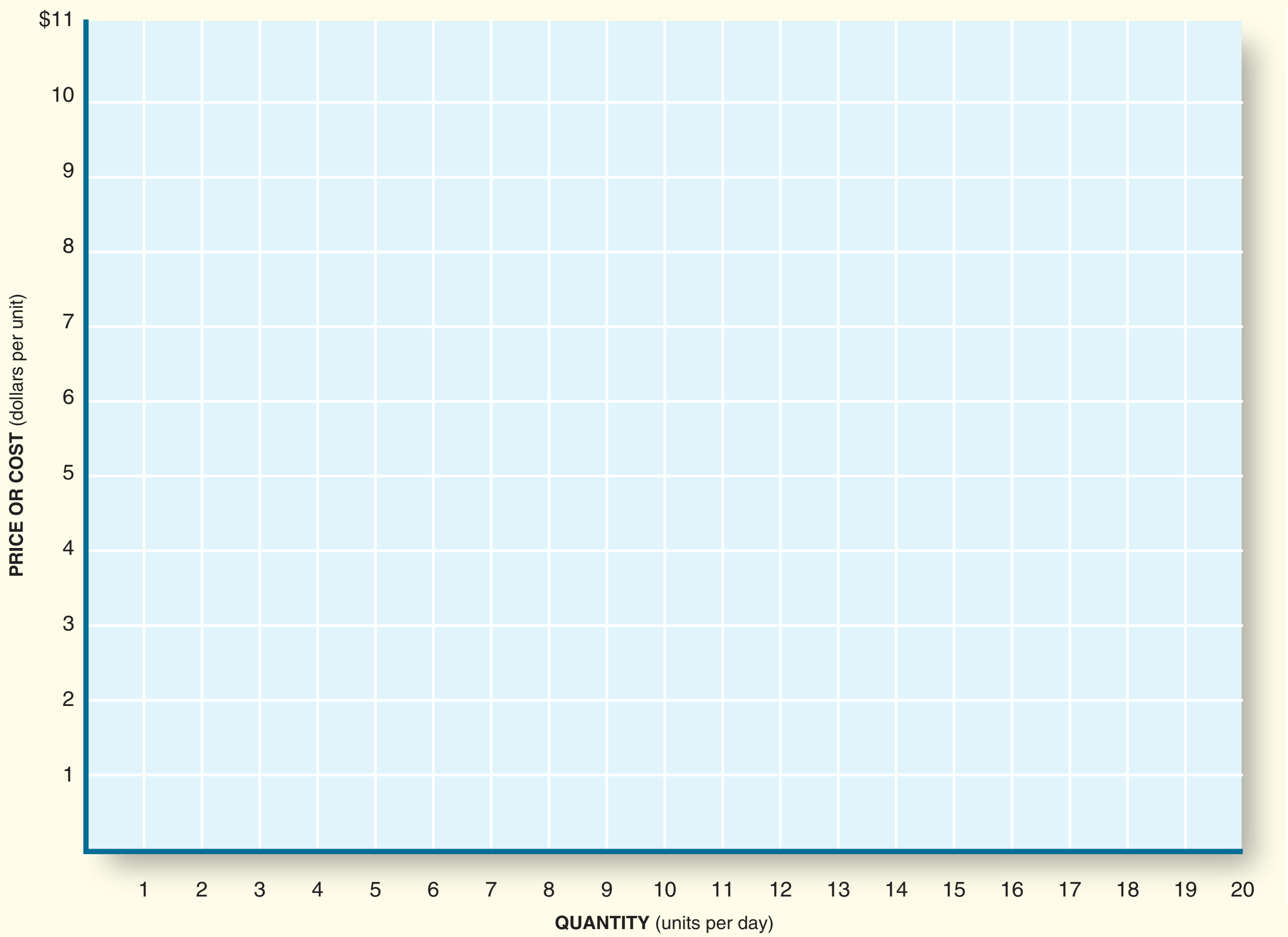
Under these conditions,

(*a*) What price and quantity will prevail if the monopolist isn't regulated? (*a1*) Price __________ (*a2*) Quantity __________

(*b*) What price–output combination would exist with efficient pricing ($MC = p$)? (*b1*) Price __________ (*b2*) Quantity __________

(*c*) What price–output combination would exist with profit regulation (zero economic profits)? (*c1*) Price __________ (*c2*) Quantity __________

Illustrate your answers on the following graph:



PROBLEMS FOR CHAPTER 27 (cont'd) Name: ____________________

LO27-3 4. According to the News on page 610, how much will annual shipping costs increase for each saved life? ________

LO27-3 5. If the average U.S. worker produces $100,000 of output per year, what is the annual opportunity cost of the federal regulatory workforce (Table 27.1)? ________

LO27-4 6. Suppose a corporation has two subsidiaries, one of which is unregulated and sells all of its output to the other, regulated subsidiary. Permitted profits at the regulated subsidiary are equal to 10 percent of total costs. Here is the initial profit picture for the subsidiaries:

	Unregulated Subsidiary	Regulated Subsidiary
Total revenue	$800,000	N/A
Total costs	$500,000	$1 million
Total profit	$300,000	$100,000

If the unregulated subsidiary doubles its selling price, what happens to profits at

(*a*) The unregulated subsidiary? ________

(*b*) The regulated subsidiary? ________

PROBLEMS FOR CHAPTER 28

Name: ______________________

LO28-2 1. How high would its pollution control costs have to be before a firm would "pay to pollute" a ton of carbon dioxide (World View, p. 634)? $ ________

LO28-3 2. In some states, mining for coal leaves large mounds of rubble, which pose flooding problems, cause land damage, and are unsightly. The following table shows the estimated annual social benefits and costs of restoring various amounts of such land:

Land restored (in acres)	0	100	200	300	400	500
Social benefits of restoring land	0	$70	$120	$160	$190	$220
Social costs of restoring land	0	$10	$40	$80	$140	$230

(*a*) Compute the marginal social benefits and the marginal social costs for each restoration level.

Land restored (in acres)	0	100	200	300	400	500
Marginal benefit (per 100 acres)	____	____	____	____	____	____
Marginal cost (per 100 acres)	____	____	____	____	____	____

(*b*) What is the optimal rate of restoration? ________

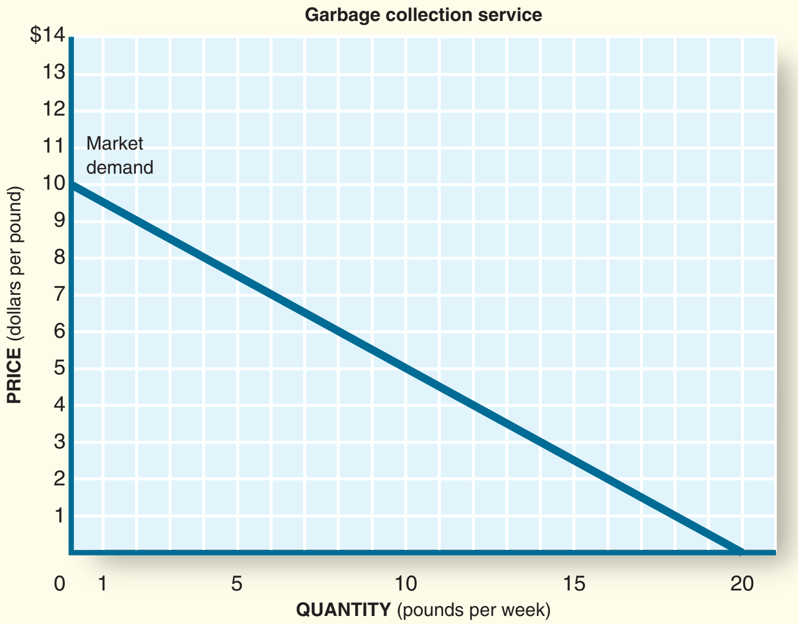
LO28-1 3. Most people pay nothing for each extra pound of garbage they create. Yet the garbage imposes external costs on a community. In view of this factor, what's an appropriate price for garbage collection? Answer the questions based on the following graph.

(*a*) What is the quantity of (free) garbage collection now demanded? ________

(*b*) How much would be demanded if a fee of $3 per pound were charged? ________

(*c*) Draw the social demand curve when an external benefit of $2 per pound exists.

(*d*) If the marginal cost of collecting garbage were constant at $6 per pound, what would be the optimal level of garbage collection? ________



LO28-3 4. Using the *high* estimate of costs and *low* estimate of benefits for pollution controls (News, p. 636), what is the average benefit per dollar spent? ________

LO28-3 5. How much more per ton is New York City paying to recycle rather than just dump its garbage (News, p. 637)? ________

LO28-2 6. Suppose three firms confront the following costs for pollution control:

	Total Costs of Control		
Emissions Reduction (Tons per Year)	Firm A	Firm B	Firm C
1	$ 40	$ 50	$ 60
2	90	130	130
3	145	220	280
4	280	340	500

(*a*) If each firm must reduce emissions by one ton, how much will be spent? ________

(*b*) If the firms can trade pollution rights, what would be the cheapest way of attaining a net three-ton reduction? ________

(*c*) How much would a pollution permit trade for (price range)? ________

Now suppose the goal is to reduce pollution by six tons.

(*d*) What is the marginal cost of a second abatement ton at

(*i*) Firm A? ________

(*ii*) Firm B? ________

(*iii*) Firm C? ________

(*e*) If each firm must reduce emissions by two tons, how much will be spent? ________

(*f*) If the firms can trade permits, what is the cheapest way of attaining a six-ton reduction? ________

(*g*) How much will a permit cost (price change)? ________

LO28-1 7. The following cost schedule depicts the private and social costs associated with the daily production of apacum, a highly toxic fertilizer. The sales price of apacum is $22 per ton.

Output (in tons)	0	1	2	3	4	5	6	7	8
Total private cost	$ 5	7	13	23	37	55	77	103	133
Total social cost	$45	63	85	111	141	175	213	255	301

Answer the questions using this schedule, and graph on the accompanying figure.

(*a*) Graph the private and social marginal costs associated with apacum production.

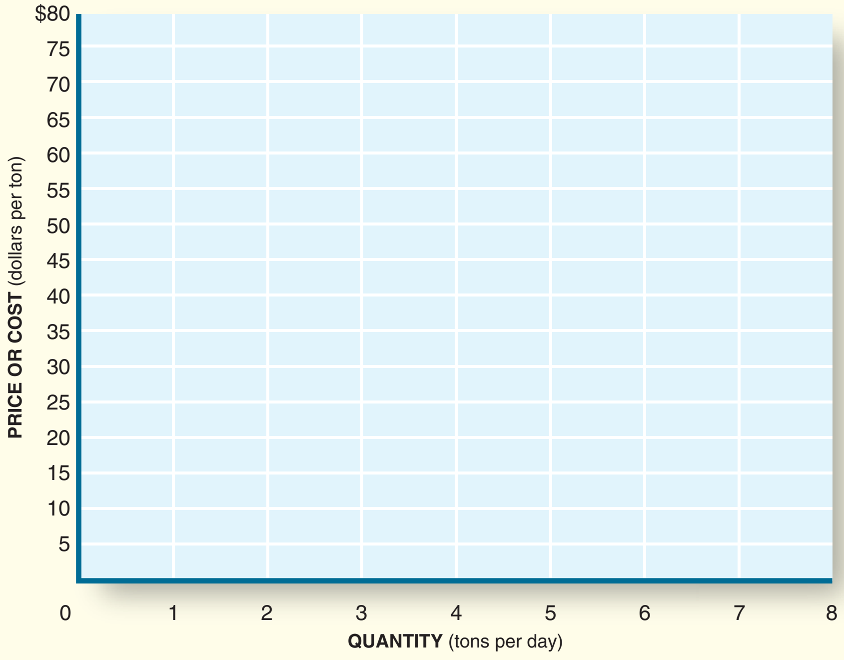
(*b*) What is the profit-maximizing rate of output for this competitive firm? ________

(*c*) How much profit is earned at that output level? ________

(*d*) What is the socially optimal rate of output? ________

(*e*) How much profit is there at that output level? ________

(*f*) How much of a "green tax" per ton would have to be levied to induce the firm to produce the socially optimal rate of output? ________



PROBLEMS FOR CHAPTER 29

Name: ________________________

LO29-2 1. Suppose the market price of corn is $1.50 per bushel.

(*a*) Would a farmer sell corn to the market or to the government (CCC)? (See Table 29.2.) ________

(*b*) How much of a countercyclical payment per bushel would the farmer receive? (See Table 29.3.) ________

(*c*) If the market price rose to $2, what would the farmer do with his corn? ________

LO29-1 2. Suppose that consumers' incomes increase 15 percent, which results in a 0.5 percent increase in consumption of farm goods at current prices. What is the income elasticity of demand for farm goods? ________

LO29-3 3. Assume that the unregulated supply schedule for milk is the following:

Price (per pound)	5¢	7¢	9¢	11¢	13¢
Quantity supplied (billions of pounds per year)	43	53	63	73	83

(*a*) Draw the supply and demand curves for milk, assuming that the demand for milk is perfectly inelastic and consumers will buy 53 billion pounds of it. What is the equilibrium price? ________

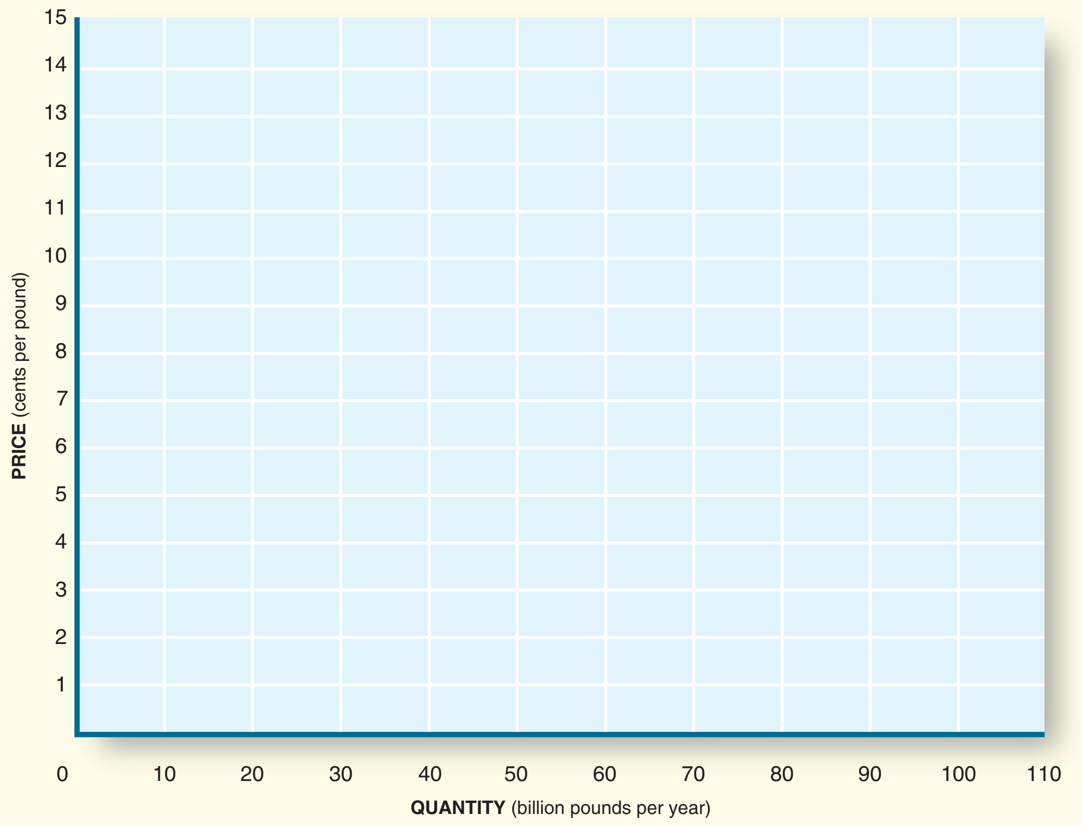
(*b*) Suppose that the farmers' response to the government's offer to pay them for not producing milk results in the following supply schedule:

Price (per pound)	5¢	7¢	9¢	11¢	13¢
Quantity supplied (billions of pounds per year)	23	33	43	53	63

(*c*) Draw this new supply curve on the same set of axes as the supply curve prior to the government's action. What is the equilibrium price following the government's action? ________

(*d*) How much more money would consumers pay for the 53 billion pounds of milk because of the higher equilibrium price? ________

(*e*) Shade the area in your diagram that represents how much more consumers will pay because of the government-sponsored cutbacks.



 Name: ______________________

LO29-3 4. Suppose there are 100 grain farmers, each with identical cost structures as shown in the following tables:

Production Costs (per Farm)

Output (Bushels per Day)	Total Cost (per Day)
0	$ 5
1	7
2	10
3	14
4	19
5	25
6	33

Demand

Price (per Bushel)	Quantity Demanded (Bushels per Day)
$1	600
2	500
3	400
4	300
5	200
6	100
7	50

Under these circumstances, graph the market supply and demand.

(*a*) What is the equilibrium price for grain? __________

(*b*) How much grain will be produced at the equilibrium price? __________

(*c*) How much total profit will each farmer earn at that price? __________

(*d*) If the government gives farmers a cost subsidy equal to $1 a bushel, what will happen to

(*i*) Output? __________

(*ii*) Price? __________

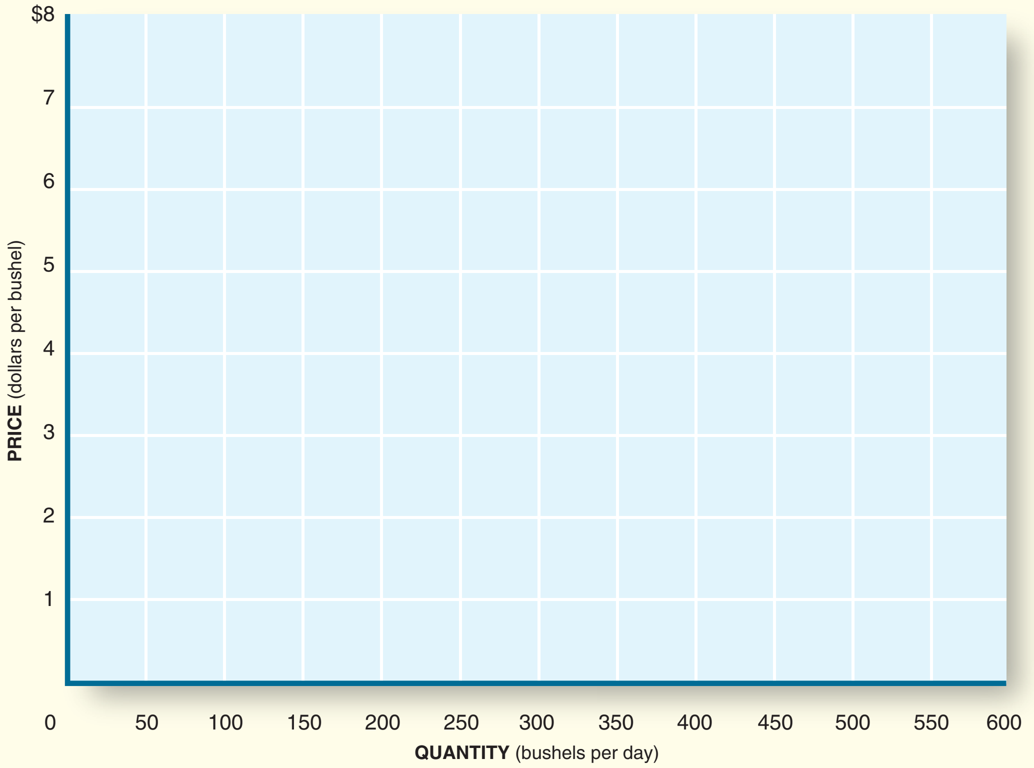
(*iii*) Profit? __________

(*e*) What will happen to total output if the government additionally guarantees a price of $5 per bushel? __________

(*f*) What price is required to sell this output? __________

(*g*) What is the cost to the government in *d*? __________

(*h*) Show your answers on the accompanying graph.



PROBLEMS FOR CHAPTER 30

Name: ______________________________

LO30-1 1. (*a*) How many runs did Joe Mauer score (home runs + RBIs) in 2010? (See News, p. 673). __________

(*b*) If his annual salary were based on runs alone, how much would each run be worth? __________

LO30-2 2. By what percentage did

(*a*) The federal minimum wage increase between July 1990 and July 2010? (See Table 30.2.) __________

(*b*) If using *The Micro Economy Today,* use the following question: Compensation per hour increase between 1990 and 2009? (See the tables at the end of the text.) __________

If using *The Economy Today,* use the following question: Average consumer prices increase between 1990 and 2010? (See the tables at the end of the text.) __________

LO30-1 3. According to the News on page 663, what was the situation in the 2009 NYC labor market?
A: Labor surplus B: Labor shortage C: Equilibrium __________

LO30-3 4. According to the News on page 677, what percentage of retail jobs would be lost if the minimum wage were increased to $9.50? __________

LO30-3 5. (*a*) According to Figure 30.8, how many workers are unemployed at the equilibrium wage? __________

(*b*) How many workers are unemployed at the minimum wage? __________

LO30-1 6. Suppose a wage increase from $11 to $13 an hour increases the number of job applicants from 42 to 56. What is the price elasticity of labor supply? __________

LO30-1 7. If the price of strawberries doubled, how many pickers would be hired at $4 an hour, according to Table 30.1? __________

LO30-3 8. Apples can be harvested by hand or machine. Handpicking yields 80 pounds per hour; mechanical pickers yield 120 pounds per hour.

(*a*) If the wage rate of human pickers is $8 an hour and the rental on a mechanical picker is $15 an hour, which is more cost-effective? __________

(*b*) If the wage rate increased to $12 an hour, which would be more cost-effective? __________

LO30-3 9. Assume that the following data describe labor market conditions:

Wage rate (per hour)	$3	$4	$5	$6	$7	$8	$9	$10
Labor demanded	50	45	40	35	30	25	20	15
Labor supplied	20	30	40	50	60	70	80	90

On the graph below, illustrate

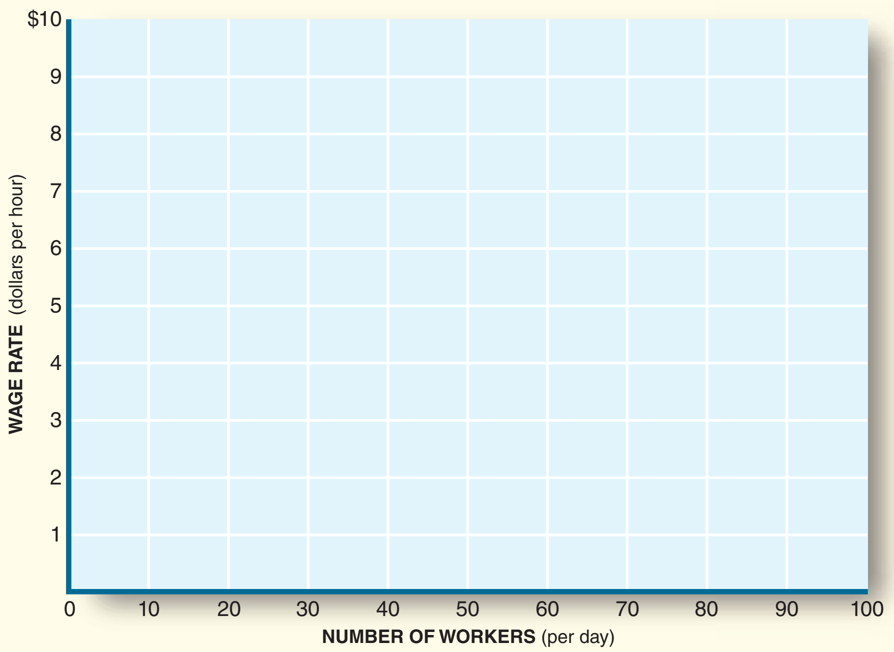
(*a*) The equilibrium wage.

(*b*) A government-set minimum wage of $6 per hour when the minimum wage is implemented.

(*c*) How many workers lose jobs? __________

(*d*) How many additional workers seek jobs? __________

(*e*) How many workers end up unemployed? __________



PROBLEMS FOR CHAPTER 30 (cont'd) Name: ______________________

LO30-2 10. The following table depicts the number of grapes that can be picked in an hour with varying amounts of labor:

Number of pickers (per hour)	1	2	3	4	5	6	7	8
Output of grapes (in flats)	20	38	53	64	71	74	74	70

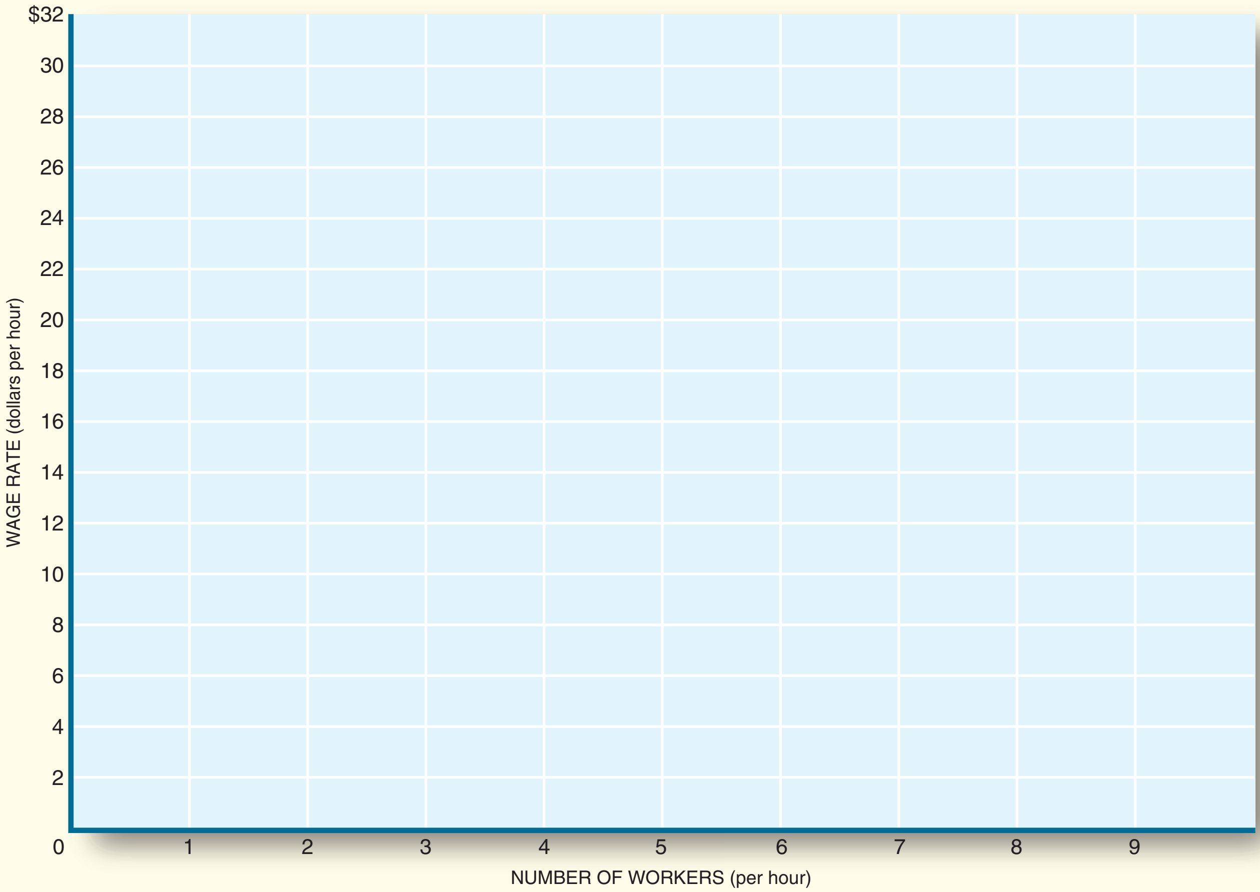
(*a*) Illustrate the supply and demand of labor for a single farmer, assuming that the local wage rate is \$6 an hour and a flat of grapes sells for \$2.

(*b*) How many pickers will be hired? __________

(*c*) If the wage rate doubles, how many pickers will be hired? __________

(*d*) If the productivity of all workers doubles, how many pickers will be hired at a wage of \$12 an hour? __________

(*e*) Illustrate your answers on the following graph.



LO30-3 11. By how much would the quantity of labor demanded have decreased as the result of the 2009 hike in the minimum wage (Table 30.2) if the elasticity of labor demand were 0.10? ________%

PROBLEMS FOR CHAPTER 31

Name: ____________________

LO31-1 1. Complete the following table:

Wage rate	$14	$13	$12	$11	$10	$9	$8	$7
Quantity of labor demanded	0	5	20	50	75	95	110	120
Marginal wage	___	___	___	___	___	___	___	___

(*a*) What is the marginal wage when the nominal wage is $11? ________

(*b*) At what wage rate does the marginal wage first become negative? ________

LO31-1 2. Complete the following table:

Wage rate	$6	$7	$8	$9	$10	$11	$12
Quantity of labor supplied	80	120	155	180	200	210	215
Marginal factor cost	___	___	___	___	___	___	___

LO31-2 3. Based on the data in Problems 1 and 2 above,

(*a*) What is the competitive wage rate? ________

(*b*) Approximately what wage will the union seek? ________

(*c*) How many workers will the union have to exclude in order to get that wage? ________

LO31-2 4. At the time of the National Football League strike in 1987, the football owners made available the following data:

	Total Team Revenues and Costs	
Source of Revenue	**Before the Strike**	**During the Strike**
Television	$973,000	$973,000
Stadium gate	526,000	126,000
Luxury box seats	255,000	200,000
Concessions	60,000	12,000
Radio	40,000	40,000
Players' salaries and costs	854,000	230,000
Nonplayer costs (coaches' salaries)	200,000	200,000

(*a*) Compute total revenues, total expenses, and profits both before and during the strike.

	Before Strike	During Strike
Total revenue	________	________
Total expense	________	________
Total profit	________	________

(*b*) Who was better positioned to endure the strike? A: NFL owners B: players ________

PROBLEMS FOR CHAPTER 31 (cont'd)

Name: ____________________

LO31-3 5. Suppose the following supply and demand schedules apply in a particular labor market:

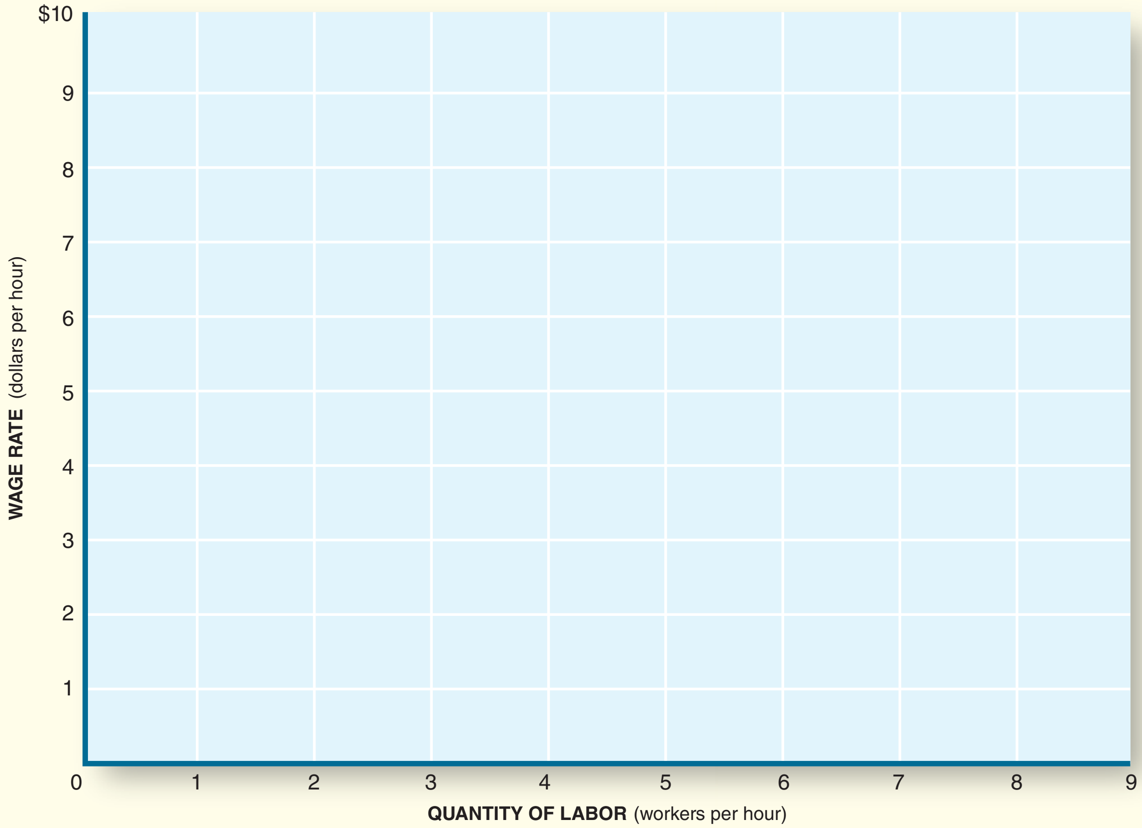
Wage rate (per hour)	$4	$5	$6	$7	$8	$9	$10
Quantity of labor supplied (workers per hour)	2	3	4	5	6	7	8
Quantity of labor demanded (workers per hour)	6	5	4	3	2	1	0

Graph the relevant curves and identify the

(*a*) Competitive wage rate. ________

(*b*) Union wage rate. ________

(*c*) Monopsonist's wage rate. ________



PROBLEMS FOR CHAPTER 32 Name: ______________________

LO32-3 1. If a $60 stock pays a quarterly dividend of $1, what is the implied annual rate of return? ________%

LO32-3 2. If a $24 per share stock has a P/E ratio of 20 and pays out 40 percent of its profits in dividends,
(*a*) How large is its dividend? $________
(*b*) What is the implied rate of return? ________%

LO32-3 3. According to the data in Table 32.3,
(*a*) How much profit per share did Google earn? $________
(*b*) How much of that profit did it pay out in dividends? $________

LO32-3 4. According to the data in Table 32.3,
(*a*) How much profit per share did Intel earn? $________
(*b*) How much of that profit did it pay out in dividends? $________

LO32-1 5. If the market rate of interest is 5 percent, what is the present discounted value of $1,000 that will be paid in
(*a*) 1 year? ________
(*b*) 5 years? ________
(*c*) 10 years? ________

LO32-1 6. What is the present discounted value of $10,000 that is to be received in 4 years if the market rate of interest is
(*a*) 0 percent? ________
(*b*) 5 percent? ________
(*c*) 10 percent? ________

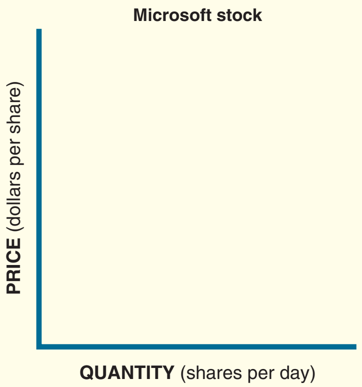
LO32-4 7. What was the expected return on Columbus's expedition, assuming that he had a 50 percent chance of discovering valuables worth $1 million, a 25 percent chance of bringing home only $10,000, and a 25 percent chance of sinking? ________

LO32-3 8. Compute the market price of the GM bonds described in Table 32.5 if the yield falls to 20 percent. ________

LO32-3 9. What is the current yield on a $1,000 bond with a 4 percent coupon if its market price is
(*a*) $900? ________
(*b*) $1,000? ________
(*c*) $1,100? ________

LO32-4 10. How much interest accrued each day on the immediate cash payoff of the MegaMillions jackpot? (See Table 32.1.) ________

LO32-4 11. Illustrate with demand and supply shifts the impact of the following events on stock prices:
(*a*) A federal court finds Microsoft guilty of antitrust violations. Which way (right or left) did
(*i*) Demand shift? ________
(*ii*) Supply shift? ________



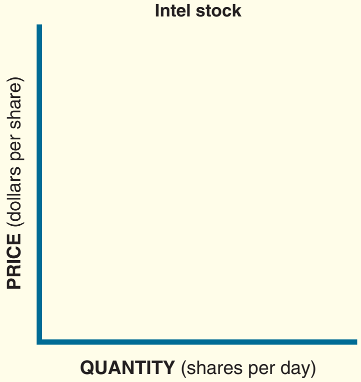
PROBLEMS FOR CHAPTER 32 (cont'd)

Name: ______________________________

(*b*) Intel announces a new and faster processor. Which way did

(*i*) Demand shift? ________

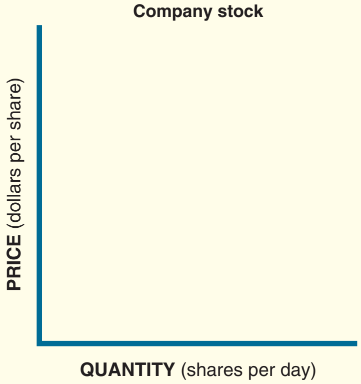
(*ii*) Supply shift? ________



(*c*) Corporate executives announce that they intend to sell a large block of stock. Which way did

(*i*) Demand shift? ________

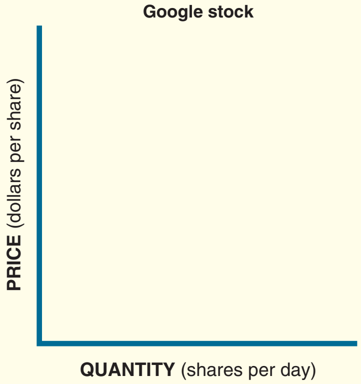
(*ii*) Supply shift? ________



(*d*) Google enhances its search capabilities. Which way did

(*i*) Demand shift? ________

(*ii*) Supply shift? ________



LO32-2 12. Which investment has a higher rate of annual cash return? Investment A: $1,000 bond with a coupon rate of 4 percent selling for $1,200 or Investment B: $1,000 stock with a P/E ratio of 10 that pays out half its profits in dividends. ________

PROBLEMS FOR CHAPTER 33 Name: ____________

connect ECONOMICS

LO33-2 1. How much more income tax would President Obama have paid in 2010 (News, p. 735) if he had used no "loopholes"? (Use the tax rates in Table 33.1.) $ ______

LO33-2 2. Had Obama succeeded in raising the top marginal tax rate (News, p. 737), how much more tax would he have paid in 2010? (Use the tax rates in Table 33.1 and the News on p. 735.) $ ______

LO33-2 3. In 2010 what was the Obamas'
(*a*) Nominal tax rate? ______%
(*b*) Effective tax rate? ______%

LO33-1 4. Use Table 33.1 to compute the taxes on a taxable income of $175,000.
(*a*) What is the marginal tax rate? ______%
(*b*) What is the average tax rate? ______%

LO33-1 5. Using Table 33.1, compute the taxable income and taxes for the following taxpayers:

Taxpayer	Gross Income	Exemptions and Deductions	Taxable Income	Tax
A	$ 20,000	$ 6,000	______	______
B	40,000	28,000	______	______
C	80,000	34,000	______	______
D	200,000	110,000	______	______

Which taxpayer has
(*a*) The highest nominal tax rate? ______
(*b*) The highest effective tax rate? ______
(*c*) The highest marginal tax rate? ______

LO33-2 6. If the tax elasticity of supply is 0.15, by how much will the quantity supplied decrease when the marginal tax rate increases from 35 to 45 percent? ______%

LO33-2 7. By how much might the quantity of labor supplied decrease if the tax elasticity of supply were 0.20 and the marginal tax rate increased from 35 to 39 percent? ______%

LO33-2 8. If the tax elasticity of labor supply were 0.16, by how much would the quantity of labor supplied increase among people in the top U.S. tax bracket if the highest marginal tax rate in the United States were reduced to the level of Hong Kong's (World View, p. 741)? ______%

LO33-2 9. What percentage of income is paid in Social Security taxes by a worker earning
(*a*) $40,000? ______%
(*b*) $80,000? ______%
(*c*) $200,000? ______%
(*d*) What kind of tax is this? (A: progressive; B: regressive; C: proportional) ______

LO33-3 10. What is the effective tax rate with Dick Armey's proposed flat tax (p. 742) for a family of four with earnings of
(*a*) $35,000? ______%
(*b*) $60,000? ______%
(*c*) $100,000? ______%

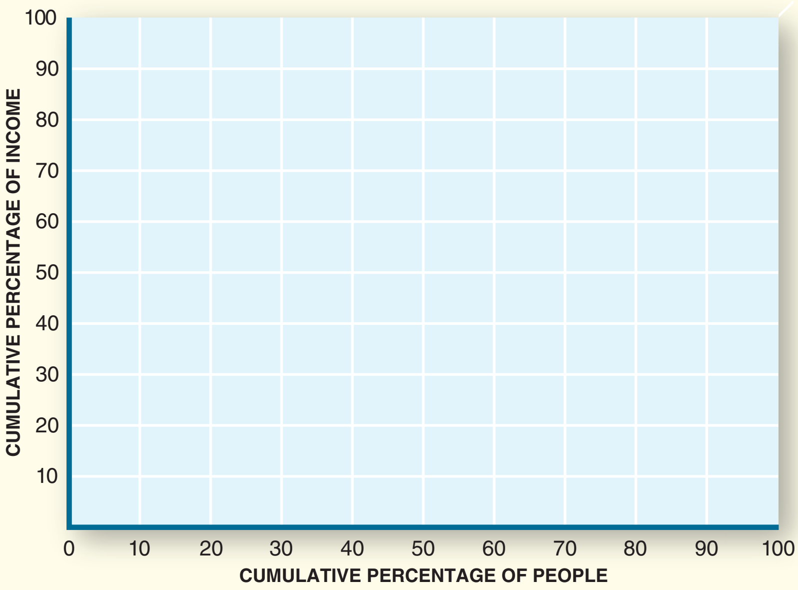
LO33-1 11. Following are hypothetical data on the size distribution of income and wealth for each quintile (one-fifth) of a population:

Quintile	Lowest	Second	Third	Fourth	Highest
Income	5%	10%	15%	25%	45%
Wealth	2%	8%	12%	20%	58%

(*a*) On the graph on the next page, draw the line of absolute equity; then draw a Lorenz curve for income, and shade the area between the two curves.
(*b*) In the same diagram, draw a Lorenz curve for wealth. Is the distribution of wealth more equal ("A") or less equal ("B") than the distribution of income? ______

LO33-1 12. If Obama's proposed marginal tax rates (News, p. 737) were enacted, by how much would the total tax increase for the example on page 732? $ ______

PROBLEMS FOR CHAPTER 33 (cont'd) Name: ______________________________



LO33-3 13. (*a*) On the graph shown below, draw the supply and demand for labor represented by the following data:

Wage	$1	2	3	4	5	6	7	8	9	10	11	12
Quantity of labor												
Supplied	1	2	3	4	5	6	8	10	12	14	17	20
Demanded	20	18	16	14	12	10	8	6	5	4	3	2

(*b*) How many workers are employed in equilibrium? __________

(*c*) What wage are they paid? __________

(*d*) Now suppose a payroll tax of $2 per worker is imposed on the employer. Draw the "supply + tax" graph that results.

(*e*) How many workers are now employed? __________

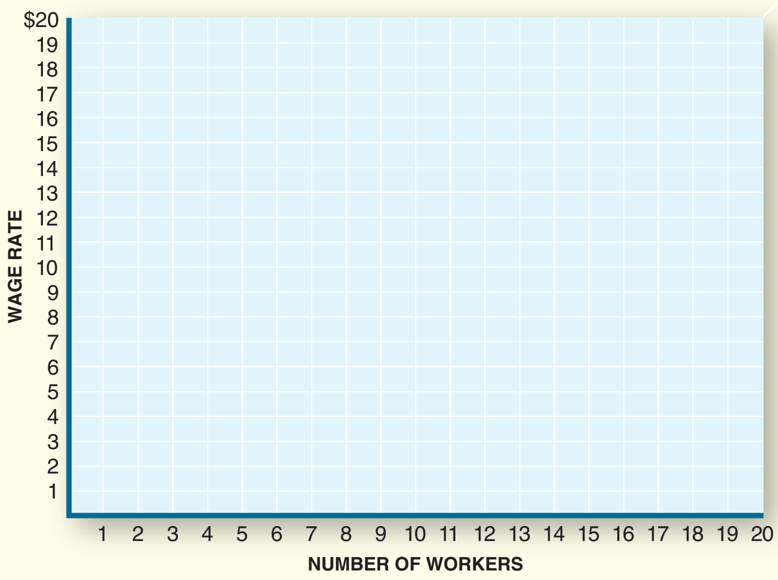
(*f*) How much is the employer paying for each worker? __________

(*g*) How much is each worker receiving? __________

For the incidence of this tax,

(*h*) What is the increase in unit labor cost to the employer? __________

(*i*) What is the reduction in the wage paid to labor? __________



PROBLEMS FOR CHAPTER 34

Name: ____________________

LO34-2 1. Suppose the welfare benefit formula is

$$\text{Benefit} = \$4{,}800 - 0.67\ (\text{Wages} > \$6{,}000)$$

(*a*) What is the marginal tax rate on

(*i*) The first $6,000 of wages? ______

(*ii*) Wages above $6,000? ______

(*b*) How large is the benefit if wages equal

(*i*) $0? ______

(*ii*) $4,000? ______

(*iii*) $9,000? ______

(*c*) What is the breakeven level of income in this case? ______

LO34-2 2. A welfare recipient can receive food stamps as well as cash welfare benefits. If the food stamp allotment is set as follows,

$$\text{Food stamps} = \$5{,}000 - 0.30\ (\text{Wages})$$

(*a*) How high can wages rise before all food stamps are eliminated? ______

(*b*) If the welfare benefit formula in Problem 1 applies, what is the *combined* marginal tax rate of both welfare and food stamps for wages above $6,000? ______

LO34-3 3. Draw a graph showing how benefits, total income, and wages change under the following conditions:

$$\text{Wage rate} = \$10 \text{ per hour}$$

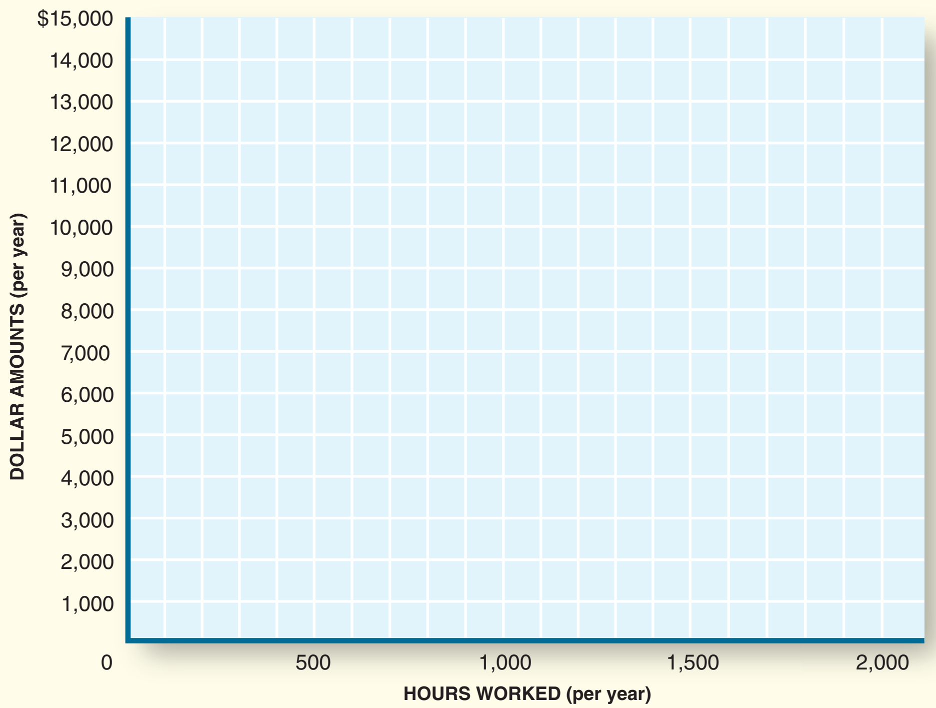
$$\text{Welfare benefit} = \$5{,}000 - 0.5\ (\text{Wages} > \$3{,}000)$$

Identify here and label on the graph the following points:

A—welfare benefit when wages = 0 — (*a*) How much is that benefit? ______

B—welfare benefit when wages = $10,000 — (*b*) How much is that benefit? ______

C—breakeven level of income — (*c*) What is that income level? ______



 Name: ____________________

LO34-3 4. What is the breakeven level of income for Social Security as depicted in Figure 34.6? ________

LO34-3 5. According to the benefit formula in Table 34.2, how large will the Social Security benefit be for a worker who had prior earnings of

(*a*) $24,000 a year? ________

(*b*) $60,000 a year? ________

What is the marginal wage replacement rate for

(*c*) The $24,000 per year worker? ________

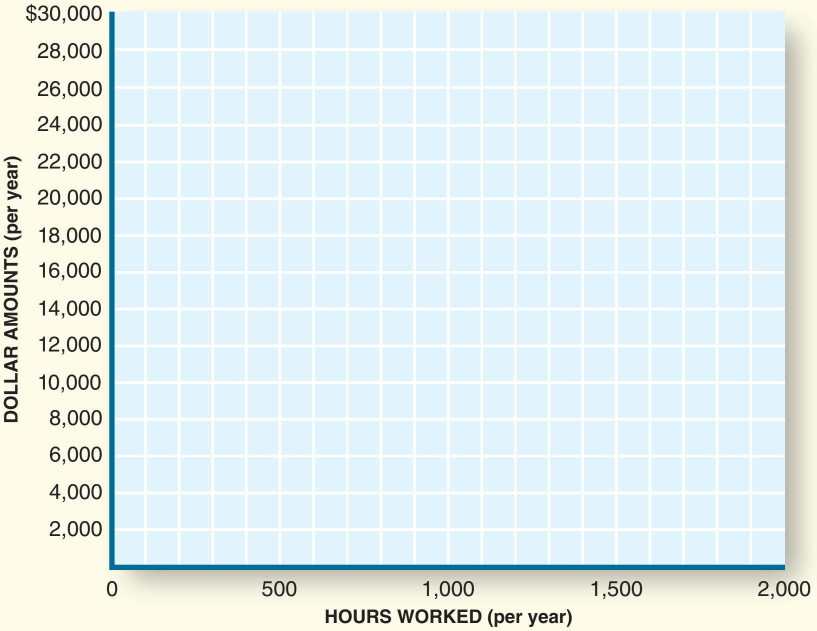
(*d*) The $60,000 per year worker? ________

LO34-3 6. How large a monthly Social Security check will a retiree get if her maximum benefit is $1,600 per month and she continues working for wages of $2,000 per month? (See Table 34.2.) ________

LO34-3 7. (*a*) On the following graph, depict the wages, income, and Social Security benefits at different hours of work for a worker aged 62–64 who earns $15 per hour and is eligible for $15,000 in Social Security benefits.

(*b*) What is the total income if the person works 1,000 hours per year? ________

(*c*) What is the breakeven level of income? ________



LO34-3 8. If older workers have a tax elasticity of labor supply equal to 0.20, by how much will their work activity decline when they reach the Social Security earnings test limit? (Assume *explicit* taxes of 30 percent below that limit.) ________%

LO34-1 9. Suppose the benefit formulas for various welfare programs are

Food stamps: $400 per month − 0.30 (Wages)
Housing assistance: $1,000 per month − 0.25 (Wages)
Cash welfare: $400 per month − 0.67 (Wages above $500)

(*a*) How much will someone earning $600 a month receive in

(*i*) Food stamps? ________

(*ii*) Housing assistance? ________

(*iii*) Cash welfare? ________

(*b*) What is the cumulative marginal tax rate at

(*i*) Wages under $500? ________

(*ii*) Wages over $500? ________

PROBLEMS FOR CHAPTER 35 Name: ______________________

connect ECONOMICS

LO35-2 1. Which countries are the two largest export markets for the United States? (See Table 35.3.) (1) ________
(2) ________

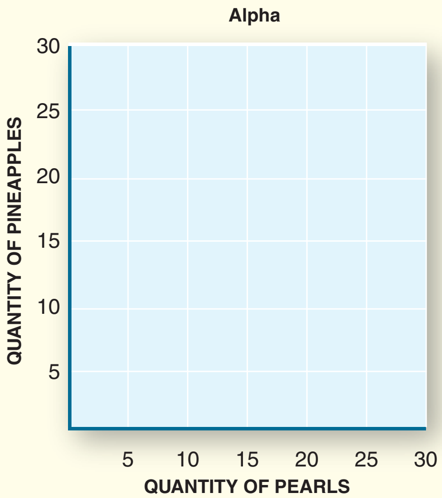
LO35-1 2. Suppose a country can produce a maximum of 20,000 jumbo airliners or 2,000 aircraft carriers.
(*a*) What is the opportunity cost of an aircraft carrier? ________
(*b*) If another country offers to trade six planes for one aircraft carrier, should the offer be accepted? ________
(*c*) What is the implied price of the carrier in trade? ________

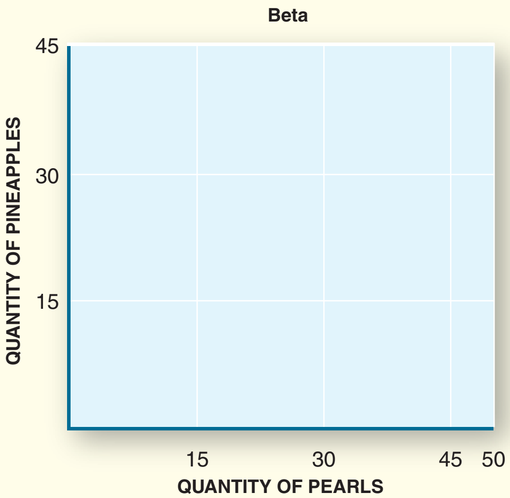
LO35-1 3. If it takes 24 farmworkers to harvest 1 ton of strawberries and 8 farmworkers to harvest 1 ton of wheat, what is the opportunity cost of 5 tons of strawberries? ________

LO35-2 4. Alpha and Beta, two tiny islands off the east coast of Tricoli, produce pearls and pineapples. The following production possibilities schedules describe their potential output in tons per year:

Alpha		Beta	
Pearls	**Pineapples**	**Pearls**	**Pineapples**
0	30	0	20
2	25	10	16
4	20	20	12
6	15	30	8
8	10	40	4
10	5	45	2
12	0	50	0

(*a*) Graph the production possibilities confronting each island.
(*b*) What is the opportunity cost of pineapples on each island (before trade)? Alpha: ________
Beta: ________
(*c*) Which island has a comparative advantage in pearl production? ________
(*d*) Graph the consumption possibilities of each island with free trade.
(*e*) If Beta produced only pearls,
(*i*) How many could it produce? ________
(*ii*) How many pearls would it have to export to get 20 pineapples in return? ________
(*iii*) What is the net gain to Beta in this case? ________





LO35-3 5. (*a*) How much more are U.S. consumers paying for the 20 billion pounds of sugar they consume each year as a result of the quotas on sugar imports? (See News, p. 783.) ________
(*b*) How much sales revenue are foreign sugar producers losing as a result of those same quotas? ________

PROBLEMS FOR CHAPTER 35 (cont'd)   Name: ____________________

LO35-2 6. Suppose the two islands in Problem 4 agree that the terms of trade will be one for one and exchange 10 pearls for 10 pineapples.

(*a*) If Alpha produced 6 pearls and 15 pineapples while Beta produced 30 pearls and 8 pineapples before they decided to trade, how many pearls would each be producing after trade? Assume that the two countries specialize according to their comparative advantage. Alpha: ________ Beta: ________

(*b*) How much would the combined production of pineapples increase for the two islands due to specialization? ________

(*c*) How much would the combined production of pearls increase? ________

LO35-3 7. Suppose the following table reflects the domestic supply and demand for compact discs (CDs):

Price ($)	18	16	14	12	10	8	6	4
Quantity supplied	8	7	6	5	4	3	2	1
Quantity demanded	2	4	6	8	10	12	14	16

(*a*) Graph these market conditions and identify

(*i*) The equilibrium price. ________

(*ii*) The equilibrium quantity. ________

(*b*) Now suppose that foreigners enter the market, offering to sell an unlimited supply of CDs for $6 apiece. Illustrate and identify

(*i*) The new market price. ________

(*ii*) Domestic consumption. ________

(*iii*)D omestic production. ________

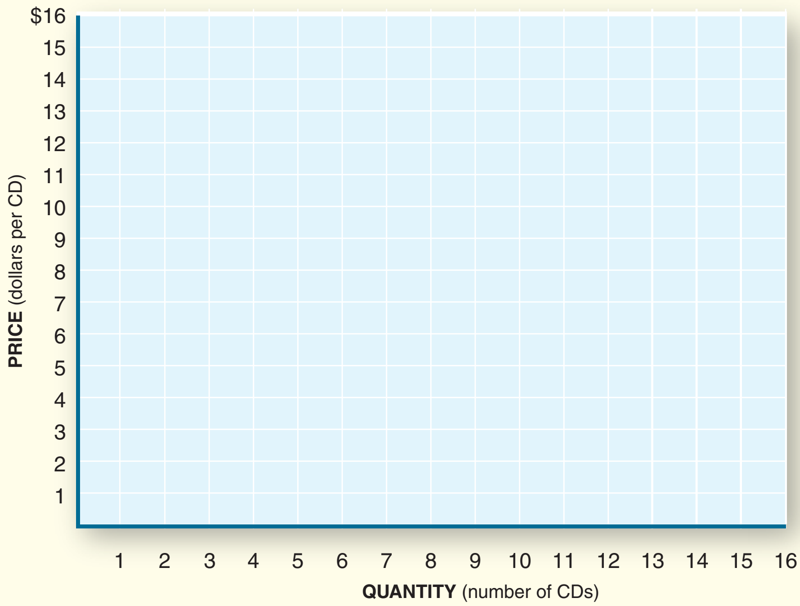
(*c*) If a tariff of $2 per CD is imposed, what will be

(*i*) The market price? ________

(*ii*) Domestic consumption? ________

(*iii*)D omestic production? ________

Graph your answers.



PROBLEMS FOR CHAPTER 36

Name: ______________________________

LO36-2 1. According to the World View on page 794, which nation had
(*a*) The cheapest currency? __________
(*b*) The most expensive currency? __________

LO36-2 2. If a euro is worth \$1.40, what is the euro price of a dollar? __________

LO36-3 3. If a pound of U.S. pork cost 40 rupiah in Indonesia before the Asian crisis, how much did it cost when the dollar value of the rupiah fell by 80 percent? __________

LO36-2 4. If a PlayStation 3 costs 20,000 yen in Japan, how much will it cost in U.S. dollars if the exchange rate is
(*a*) 120 yen = \$1? __________
(*b*) 1 yen = \$0.00833? __________
(*c*) 100 yen = \$1? __________

LO36-2 5. Between 1980 and 2003, by how much did the dollar appreciate (Figure 36.3)? ________%

LO36-1 6. If inflation raises U.S. prices by 3 percent and the U.S. dollar appreciates by 5 percent, by how much does the foreign price of U.S. exports change? ________%

LO36-2 7. According to the World View on page 794, what was the peso price of a euro in May 2011? __________

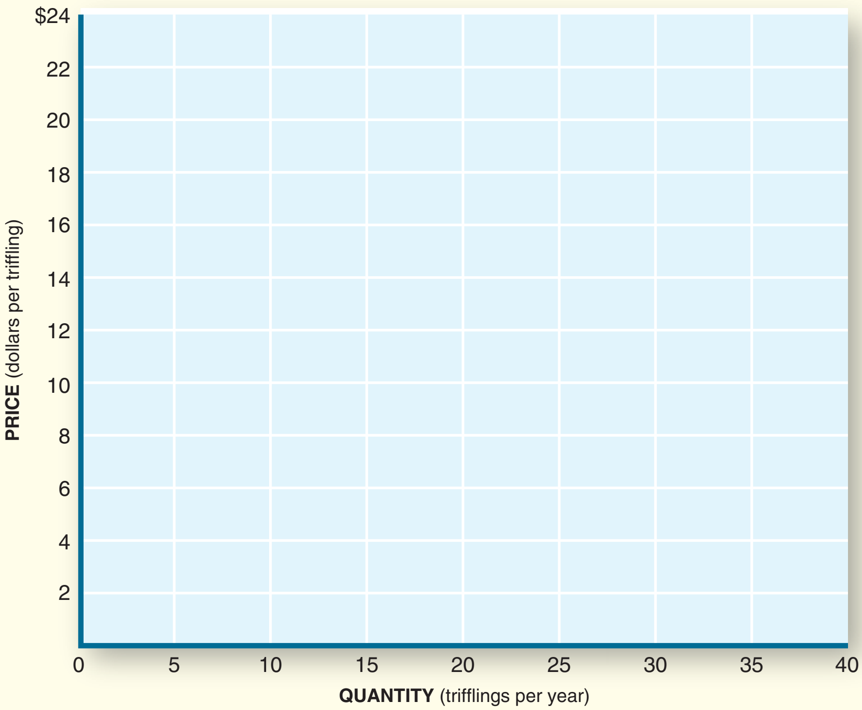
LO36-3 8. For each of the following possible events, indicate whether the global value of the U.S. dollar will A: rise or B: fall.
(*a*) American cars become suddenly more popular abroad. __________
(*b*) Inflation in the United States accelerates. __________
(*c*) The United States falls into a recession. __________
(*d*) Interest rates in the United States drop. __________
(*e*) The United States experiences rapid increases in productivity. __________
(*f*) Anticipating a return to the gold standard, Americans suddenly rush to buy gold from the two big producers, South Africa and the Soviet Union. __________
(*g*) War is declared in the Middle East. __________
(*h*) The stock markets in the United States collapse. __________

LO36-3 9. The following schedules summarize the supply and demand for trifflings, the national currency of Tricoli:

Triffling price (U.S. dollars per triffling)	0	\$4	\$8	\$12	\$16	\$20	\$24
Quantity demanded (per year)	40	38	36	34	32	30	28
Quantity supplied (per year)	1	11	21	31	41	51	61

Use these schedules for the following:
(*a*) Graph the supply and demand curves on the next page.
(*b*) Determine the equilibrium exchange rate. __________
(*c*) Determine the size of the excess supply or excess demand that would exist if the Tricolian government fixed the exchange rate at \$22 = 1 triffling. __________

(*d*) Which of the following events would help reduce the payments imbalance? Which would not? (A = helps; B = doesn't help)
(*i*) Domestic inflation. ________
(*ii*) Foreign inflation. ________
(*iii*) Slower domestic growth. ________
(*iv*) Faster domestic growth. ________



LO36-3 10. As shown in Table 36.1, in 2010 the United States was running a current account deficit. How would each of the following events affect the size of the current account deficit?
(*a*) U.S. companies, the largest investors in Switzerland, see even more promising investment opportunities there. ________
(*b*) The Netherlands, one of the largest foreign investors in the United States, finds investment opportunities less attractive. ________
(*c*) Unemployment and recession continue in the United States. ________

LO36-2 11. The following exchange rates were taken from ExchangeRate.com. On July 21, by how much did the dollar appreciate or depreciate against the
(*a*) Chinese yuan? ________
(*b*) Canadian dollar? ________

Currency Rates per 1.00 U.S. Dollar

	July 20	July 21
Chinese yuan (CNY)	6.458831	6.454755
Canadian dollar (CAD)	0.948479	0.945833

PROBLEMS FOR CHAPTER 37 Name: ____________________

connect ECONOMICS

LO37-1 1. Adjusted for inflation, the World Bank's threshold for "extreme" poverty is $1.25 per person per day.

(*a*) How much *annual* income does this imply for a family of four? $________

(*b*) What portion of the official U.S. poverty threshold (roughly $22,000 for a family of four) is met by the World Bank's measure? ________%

LO37-2 2. Two and a half billion people are in "severe" poverty with less than $2 of income per day.

(*a*) What is the maximum *combined* income of this "severely" poor population? $________

(*b*) What percentage of the world's *total* income (roughly $72 trillion) does this represent? ________%

LO37-2 3. In Namibia,

(*a*) What percentage of total output is received by the richest 10 percent of households? (See World View, p. 815.) ________%

(*b*) How much output did this share amount to in 2010, when Namibia's GDP was $12 billion? $________

(*c*) With a total population of 2 million, what was the implied per capita income of

(*i*) The richest 10 percent of the population? $________

(*ii*) The remaining 90 percent? $________

LO37-3 4. (*a*) How much foreign aid does the United States now provide? (See Table 37.2.) $________

(*b*) How much more is required to satisfy the UN's Millennium Aid Goal if U.S. GDP = $15 trillion? $________

LO37-3 5. If the industrialized nations were to satisfy the UN's Millennium Aid Goal, how much *more* foreign aid would they give annually? (See Table 37.2.) $________

LO37-3 6. According to Table 37.3, how many years will it take for per capita GDP to double in

(*a*) China? ________

(*b*) Madagascar? ________

(*c*) Zimbabwe? ________

LO37-3 7. (*a*) Which low-income nation in Table 37.3 has a GDP growth rate closest to that of the United States? ________

(*b*) How much faster is that nation's population growth? ________%

(*c*) How much lower is its per capita GDP growth? ________%

LO37-3 8. According to the World View on page 817,

(*a*) How much money is spent annually to combat baldness? $________

(*b*) How much medical care would that money buy for each child who dies from malaria each year? $________