# 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)? _____

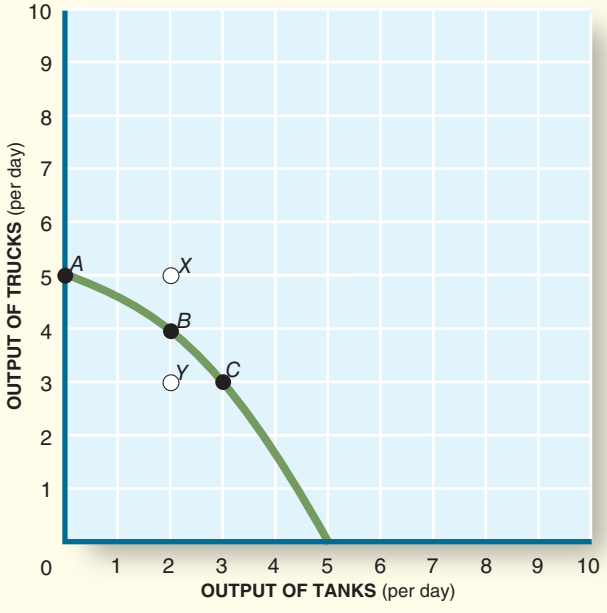
LO1-1 4. (*a*) What is the cost of the North Korean 2009 missile launch, according to South Korea (p. 10)? _____
(*b*) How many people could have been fed for an entire year at the World Bank standard of $2 per day with that money? _____

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.



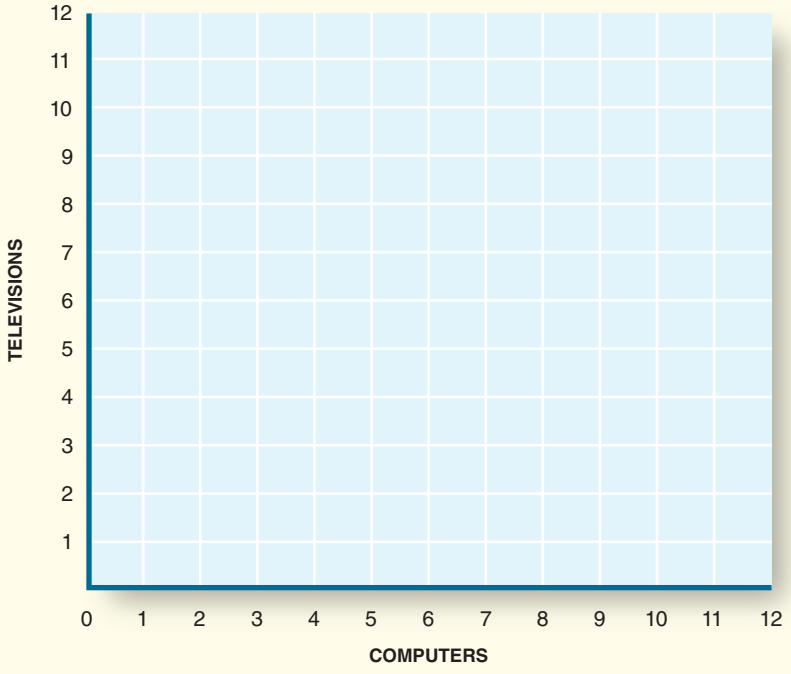
## PROBLEMS FOR CHAPTER 1 (Cont'd)

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? _____

## PROBLEMS FOR CHAPTER 1 (Cont'd)

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 |

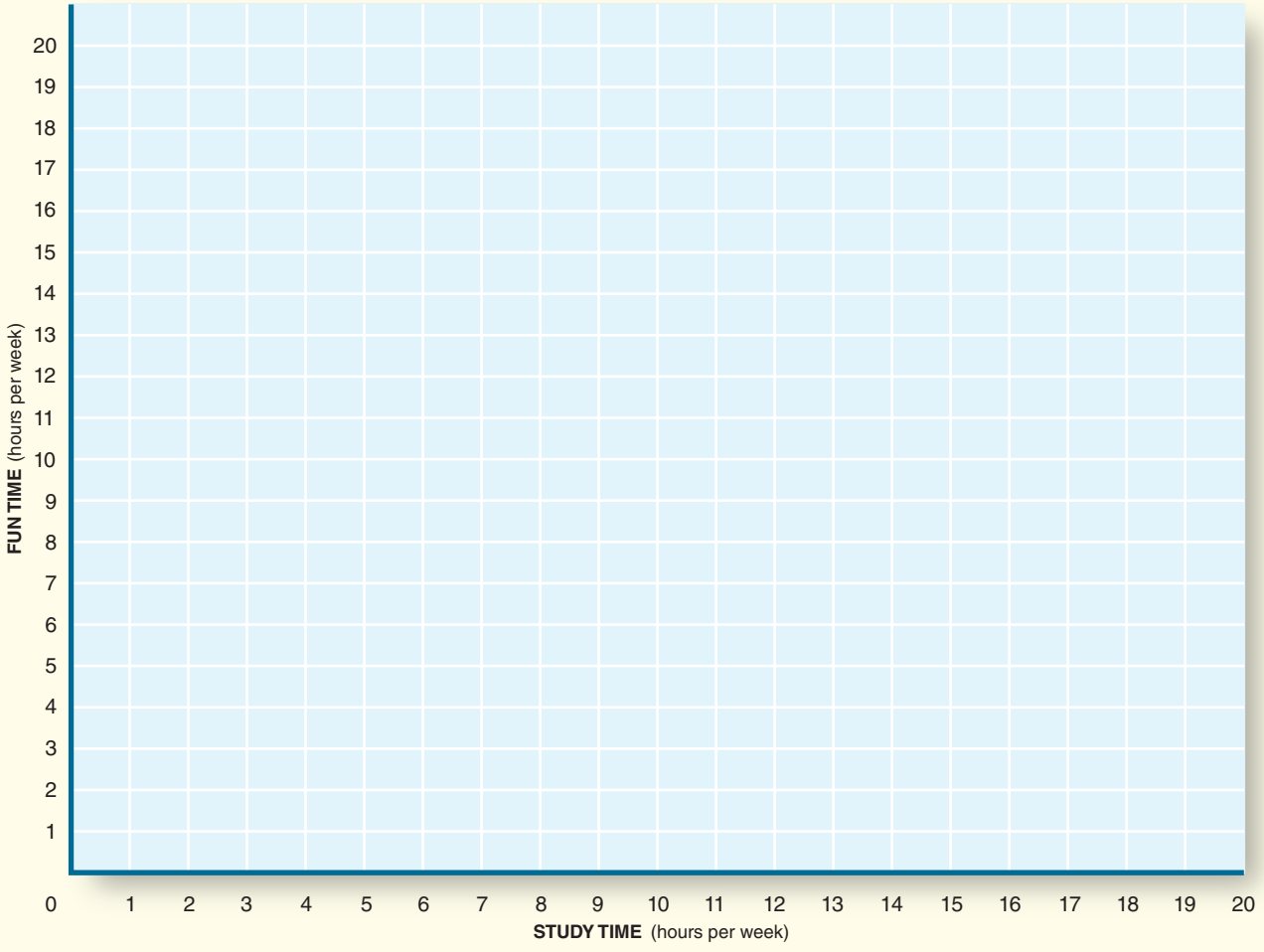
If you have only 20 hours per week to use for either study time or fun time,

(*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: _____

connect ECONOMICS

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? _____%

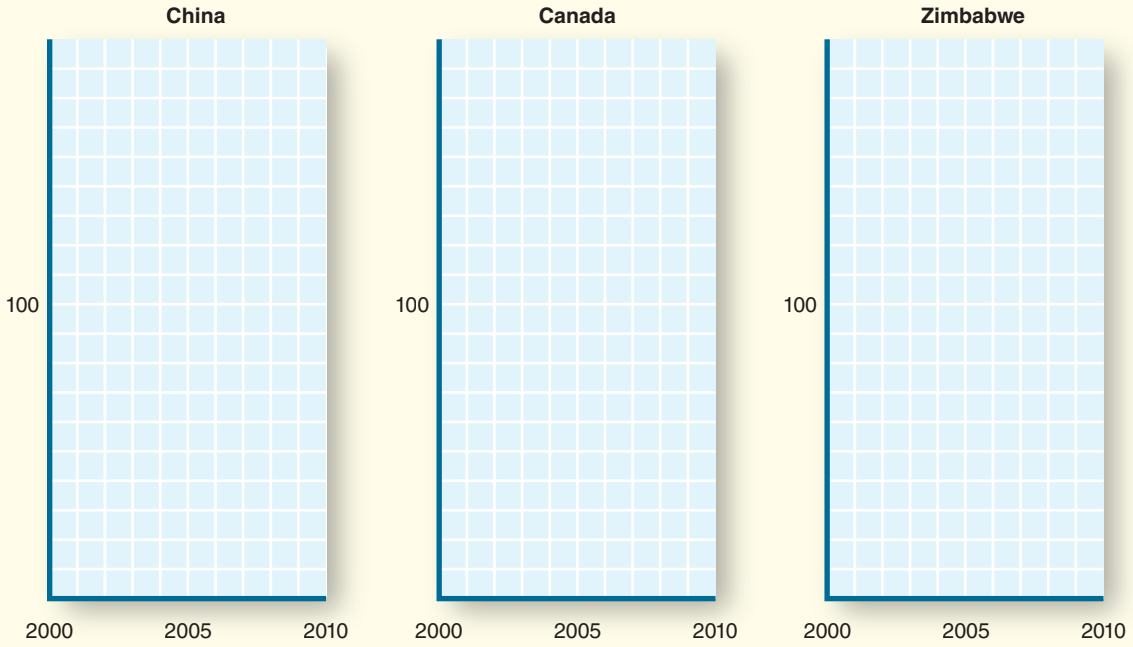
LO2-3 8. If 150 million workers produced America's GDP in 2010 (World View, p. 31), how much output did the average worker produce? $ _____

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? $ _____

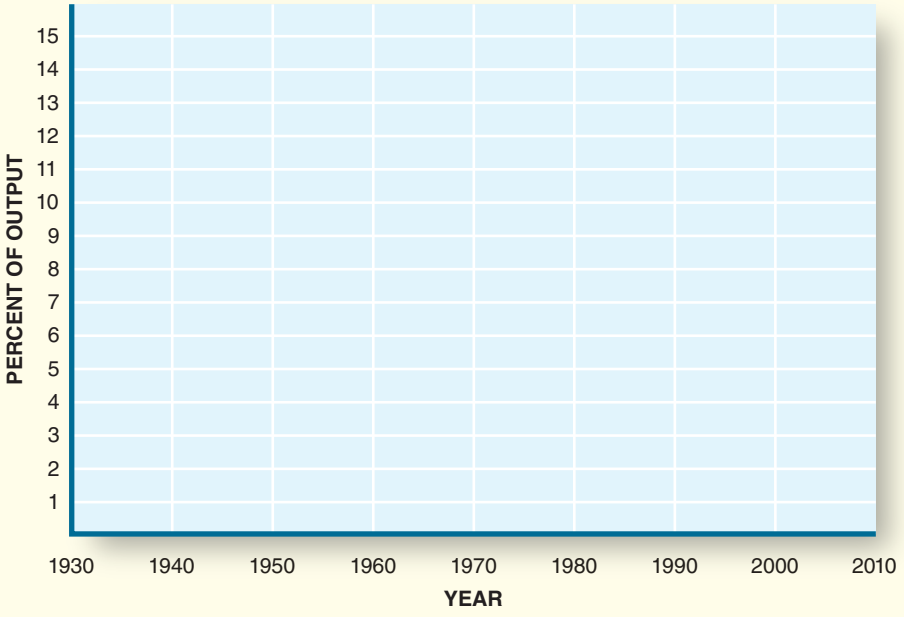
## PROBLEMS FOR CHAPTER 2 (cont'd)

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: _____

connect ECONOMICS

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 | — | — | — | — | — |

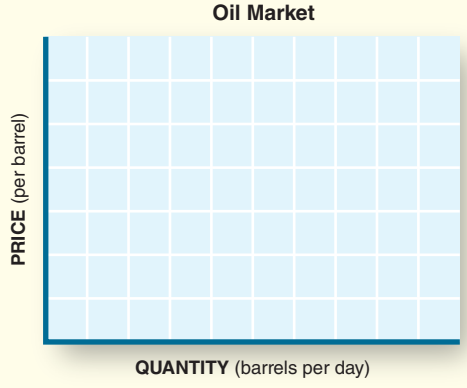
LO3-2 5. As a result of the BP oil spill (News, p. 58), which of the following changed in the shrimp market (answer yes or no):

(*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? _____

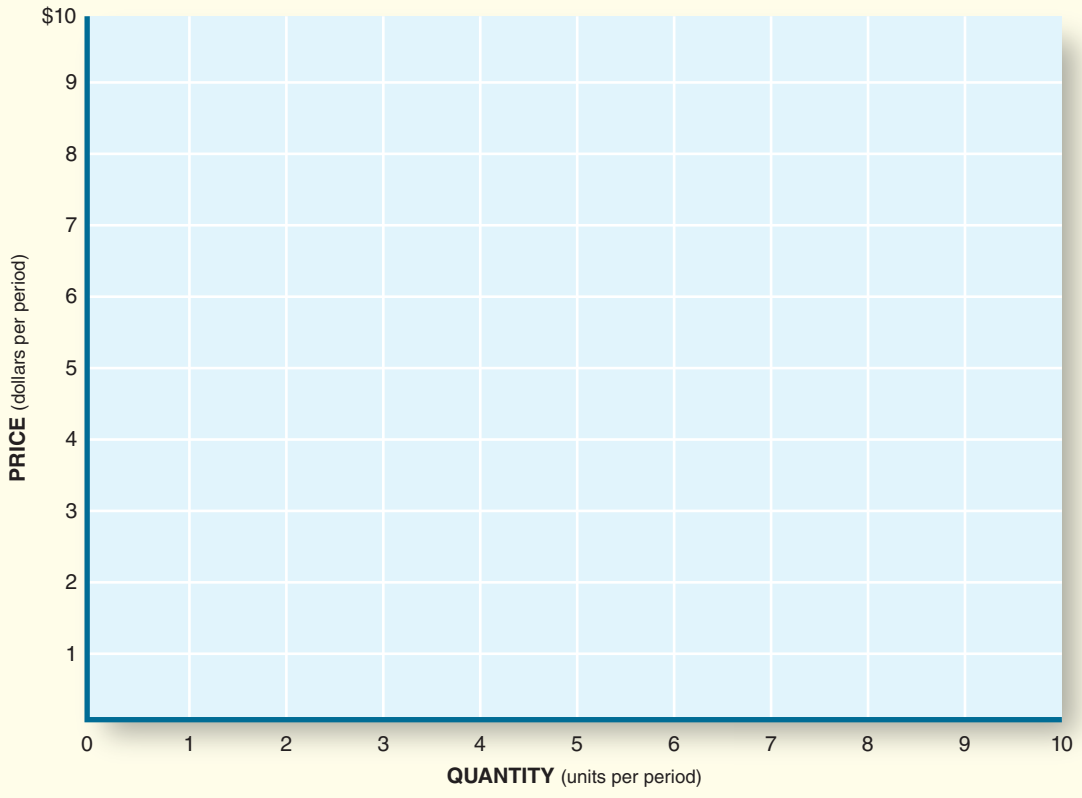
(*ii*) How large is it? _____

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

(*i*) What disequilibrium situation results? _____

(*ii*) How large is it? _____

Illustrate these answers.



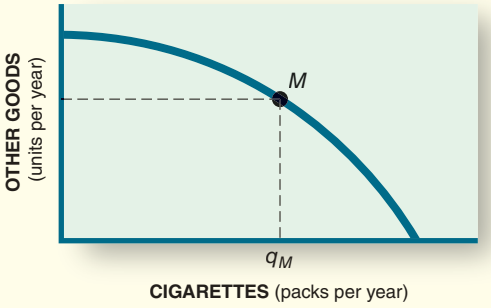
# PROBLEMS FOR CHAPTER 4

Name: _____

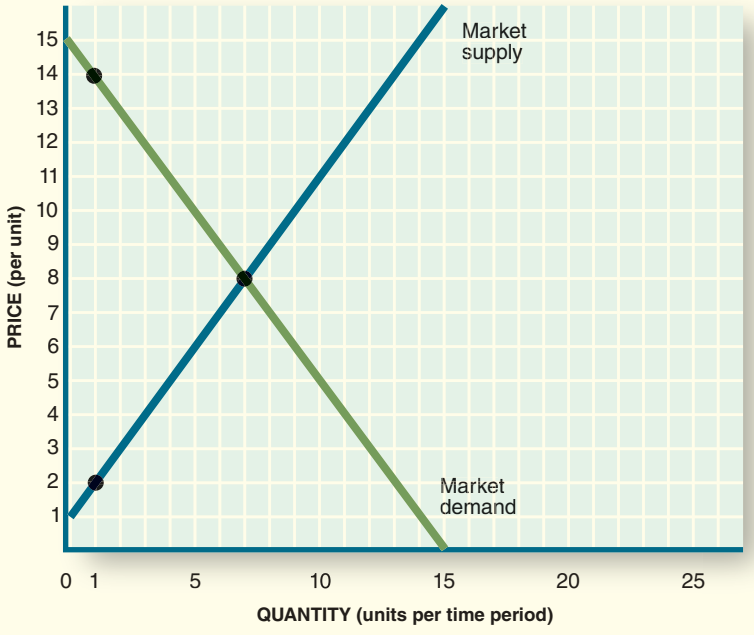
connect ECONOMICS

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.) _____

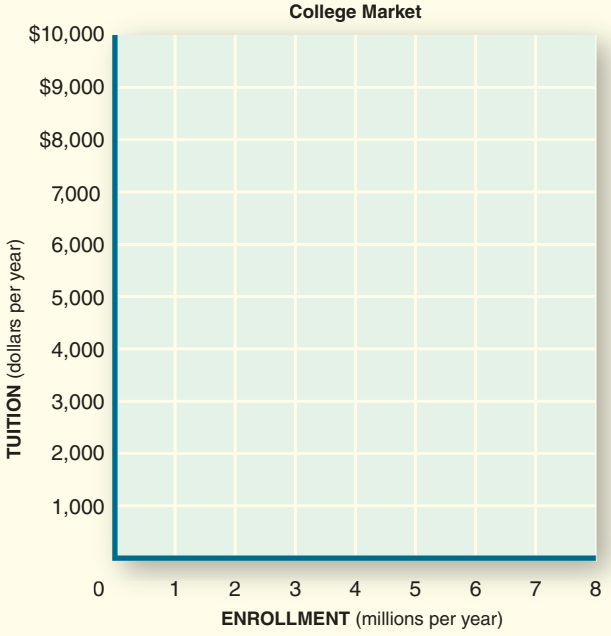
LO4-1 8. Suppose the following data represent the market demand for college education:

| 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: _____

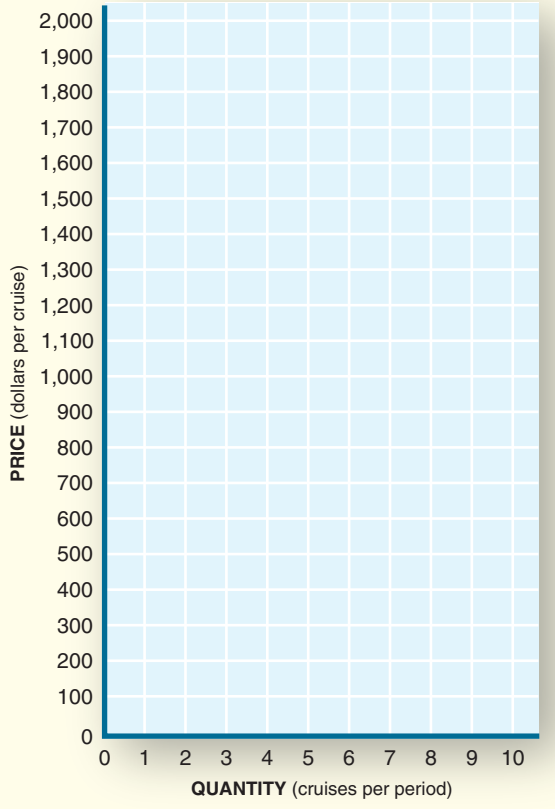
LO5-1 1. According to Table 5.1,
(*a*) With which box of popcorn does marginal utility first diminish? _____
(*b*) With which box does marginal utility become negative? _____

LO5-2 2. In Figure 5.4, how much consumer surplus is received by
(*a*) Hua? _____
(*b*) Carlos? _____
(*c*) John? _____

LO5-2 3. In Figure 5.4, if Blaise's maximum price threshold doubled,
(*a*) Would she buy a Spyder? _____
(*b*) How much consumer surplus would she have? _____

LO5-2 4. What is the combined consumer surplus for the four buyers above point *A* in Figure 5.4 if all the Spyders are sold for $845,500? _____

LO5-3 5. What is the total revenue (price × quantity) received by the car dealer in Figure 5.4 if he charges
(*a*) A uniform price of $800,000? _____
(*b*) Maximum individual prices to Fred, Michel, Hua, Carlos, and John? _____




LO5-3 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 |

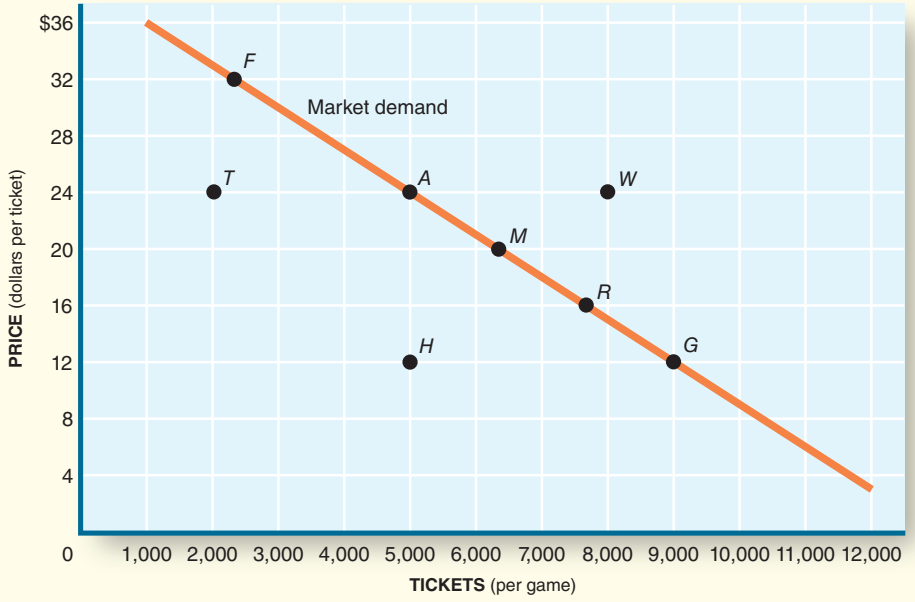
(*a*) Draw the market demand for these eight consumers on the accompanying graph.
(*b*) If the cruise costs $1,000, how many passengers will there be? _____
(*c*) If the cruise costs $1,000, how much total revenue will be collected? _____
(*d*) If the cruise costs $1,000, how much consumer surplus will those passengers enjoy? _____
(*e*) If the cruise ship could perfectly price discriminate, how much more revenue could it take in? _____

LO5-4 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? _____

LO5-1 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? $ _____

## PROBLEMS FOR CHAPTER 5 (cont'd)

Name: _____




LO5-4 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 |

LO5-1 10. Use the following data to illustrate the relevant demand curve:

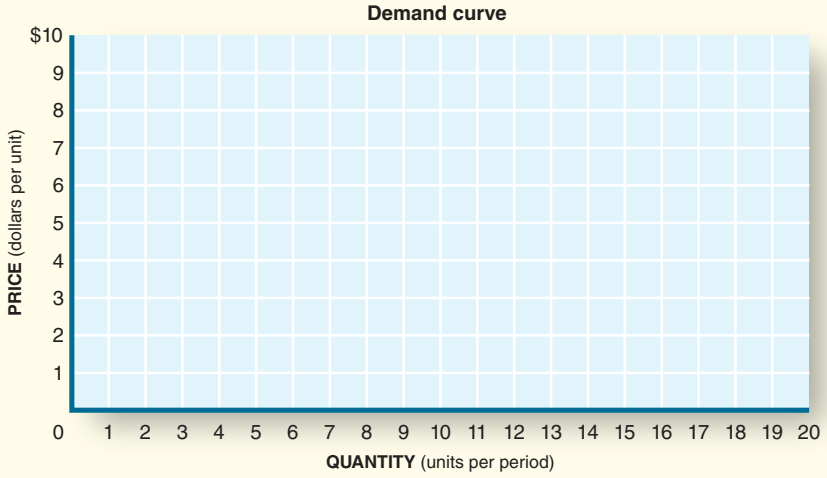
| Price | $ 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Quantity | 20 | 18 | 16 | 14 | 12 | 10 | 8 | 6 | 4 | 2 |

(*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 6

Name: _____

connect ECONOMICS

LO6-1 1. By changing the denominator in each case, compute the percentage change in the iPhone's price (see text and News, p. 121), from
   (*a*) The initial price. _____
   (*b*) The final price. _____
   (*c*) The average price. _____

LO6-1 2. What was the price elasticity of demand for iPhones in 2007 (News, p. 121)? _____

LO6-1 3. According to Professor Becker (News, p. 123), by how much would cigarette prices have to rise to get a 20 percent reduction in smoking in
   (*a*) one year? _____%
   (*b*) three years? _____%

LO6-1 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. 119.) _____%
   (*b*) By what percentage will cigarette sales decline in the short run? (See Table 6.1 for a clue.) _____%
   (*c*) According to Gary Becker, by how much will sales decline in the long run? (News, p. 123.) _____%

LO6-2 5. From Figure 6.1, 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* | _____ |

LO6-1 6. If the price of a pack of cigarettes (including taxes) was $4 before the 2009 tax hike (see the News, p. 121),
   (*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? _____

LO6-4 7. According to the calculation on pages 129–130, by how much will popcorn sales increase if average income goes up by 10 percent? _____%

LO6-3 8. If a gasoline price hike of 4 percent caused the SUV sales drop described in the News on page 128, what is the cross-price elasticity of demand between gasoline and SUVs? _____

LO6-3 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? _____

LO6-5 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 6 (cont'd)

Name: _____

LO6-2 11. Use the following data to illustrate the (*a*) demand curve and (*b*) total revenue curve:

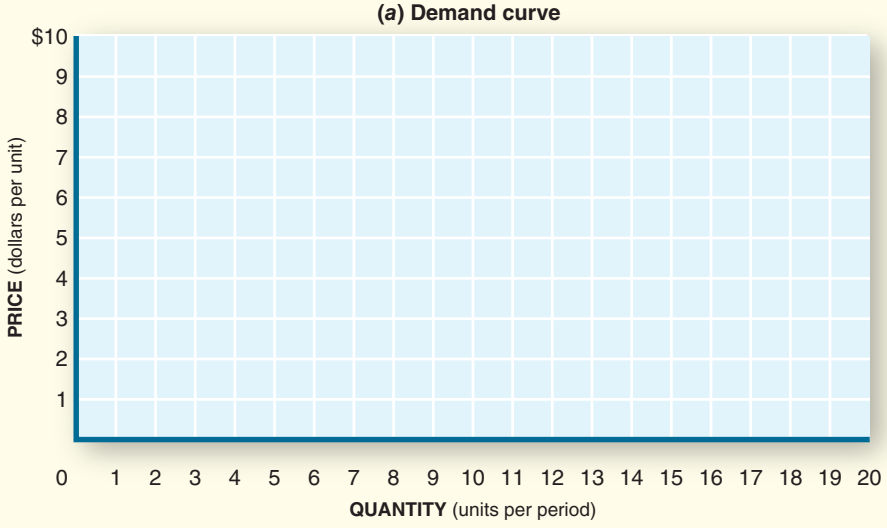
| Price | $ 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Quantity | 20 | 18 | 16 | 14 | 12 | 10 | 8 | 6 | 4 | 2 |

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

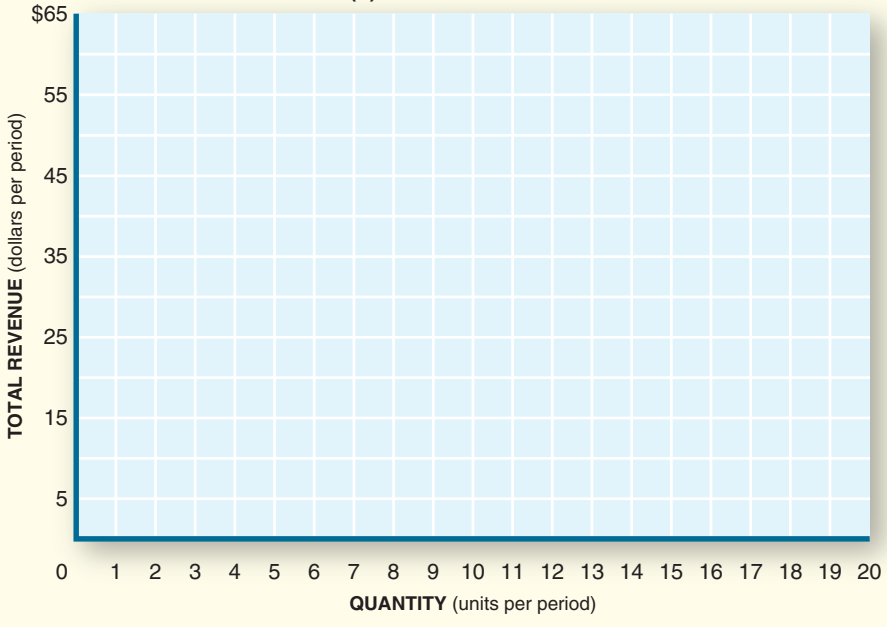
(*b*) At that price, what is the elasticity of demand? *E* = _____

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

**(*a*) Demand curve**



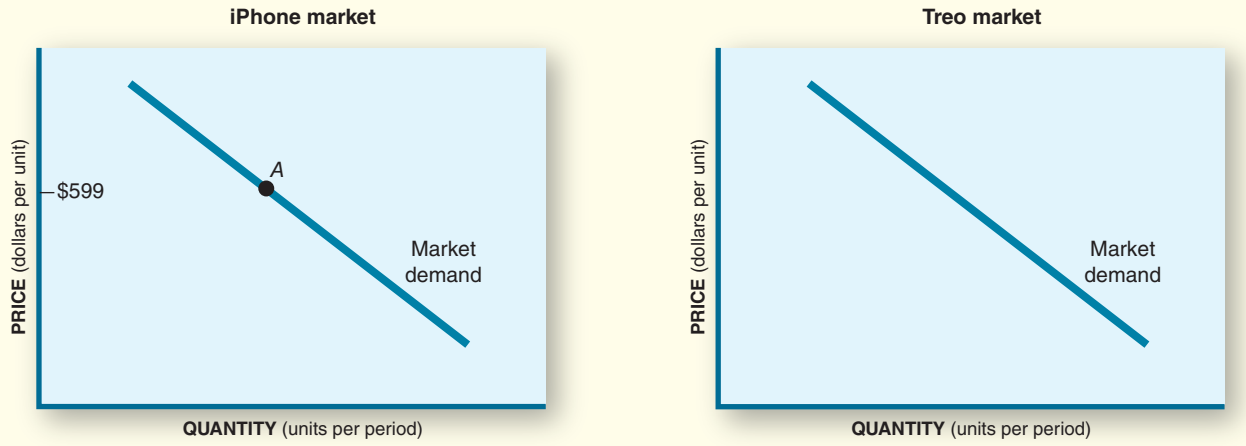

**(*b*) Total revenue curve**



## PROBLEMS FOR CHAPTER 6 (cont'd)

Name: _____

LO6-3 12. On the graphs below, show the impact of the price reduction for iPhones, as described in the News on pages 121 and 127.



## PROBLEMS FOR CHAPTER 7

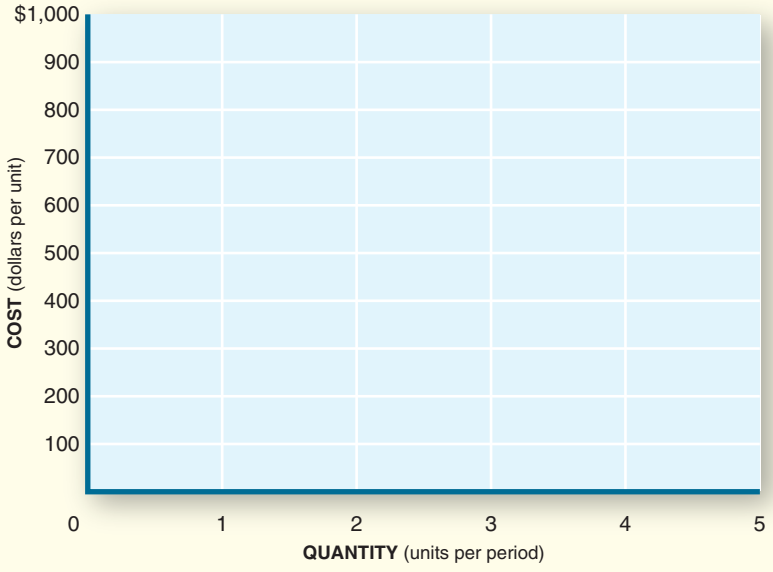
Name: _____

connect ECONOMICS

LO7-3 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.) _____



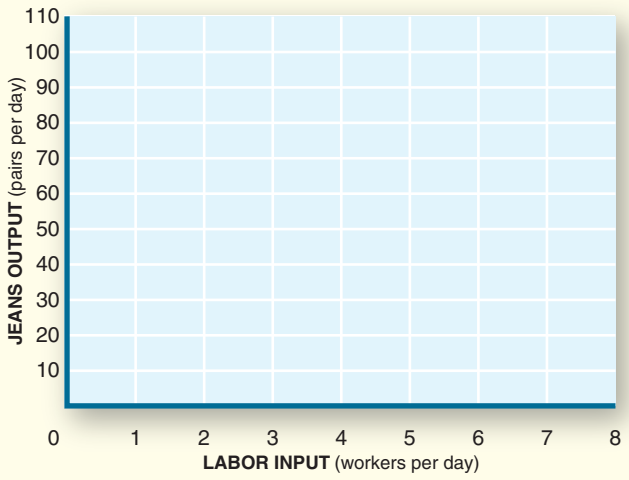

LO7-5 2. Based on the News on page 154, what is the ATC per dollar of sales at
(*a*) The largest funeral home? _____
(*b*) Smaller funeral homes (based on the industry as a whole)? _____

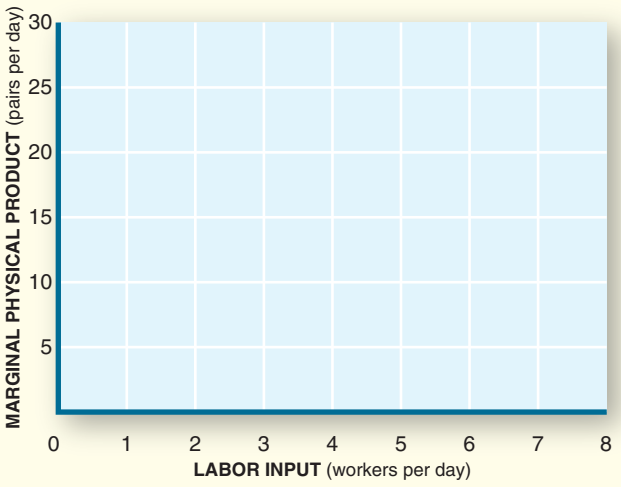
LO7-4 3. Suppose a company incurs the following costs: labor, $600; equipment, $300; and materials, $200. The company owns the building, so it doesn't have to pay the usual $900 in rent.
(*a*) What is the total accounting cost? _____
(*b*) What is the total economic cost? _____
(*c*) If the company sold the building and then leased it back, what would be the change in
(*i*) Accounting costs? _____
(*ii*) Economic costs? _____

LO7-2 4. Refer to the production table for jeans (Table 7.1). 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? _____

## PROBLEMS FOR CHAPTER 7 (cont'd)

Name: _____

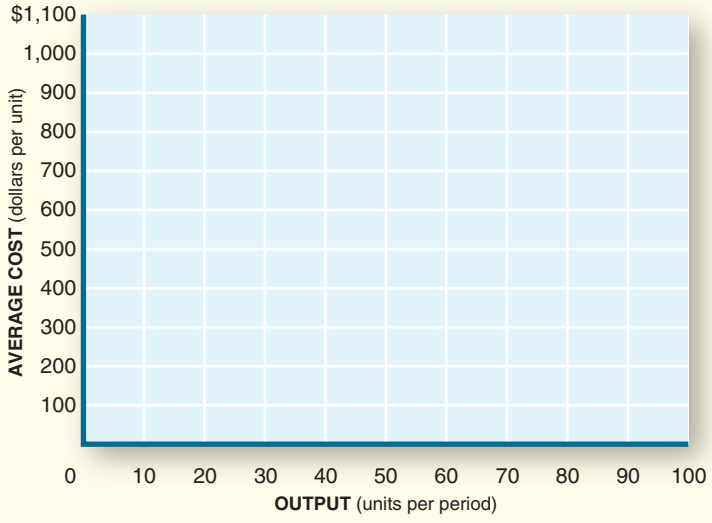



LO7-3 5. The following table indicates the average total cost of producing varying quantities of output from three different plants:

| 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? _____




LO7-5 6. According to the World View on page 157, (*a*) which nation had the biggest loss of competitive position in years 2000–2009? (*b*) Which nation had the biggest gain? (*a*) _____ (*b*) _____

LO7-1 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 8

Name: _____

connect ECONOMICS

LO8-1 1. If the owner of the Table 8.1 drugstore hired a manager for $12 an hour to take his place, how much of a change would show up in

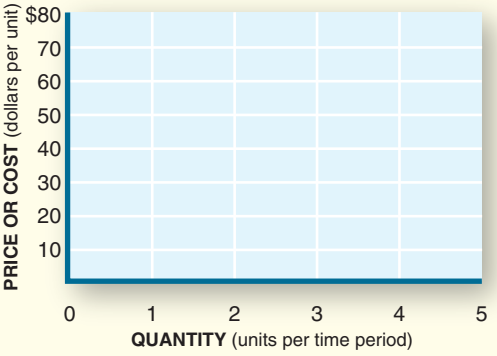
(*a*) Accounting profits? _____
(*b*) Economic profits? _____

LO8-1 2. If the price of catfish fell from $13 to $9 per bushel, use Figure 8.7 to determine the

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

LO8-2 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? _____

LO8-2 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? _____

LO8-3 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? _____

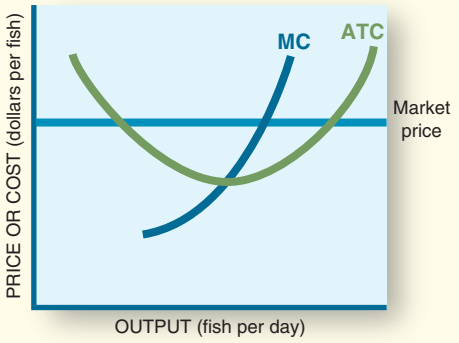
LO8-6 6. Using the data from Problem 5 (at the original price of $19), determine how many ties the producer would supply if

(*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. _____

## PROBLEMS FOR CHAPTER 8 (cont'd)

Name: _____

LO8-6 7. Illustrate on the accompanying graph the News on page 184.




LO8-4 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? _____

LO8-5 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.

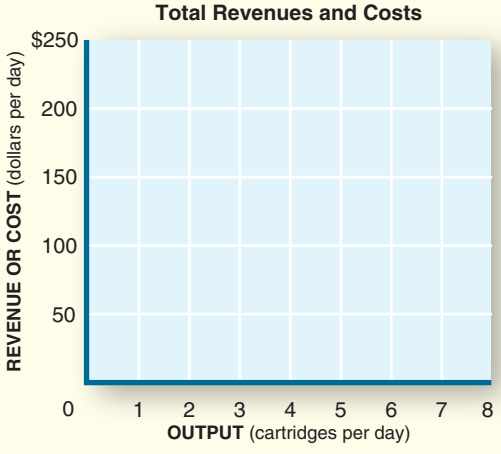
(*c*) Draw the average total cost (ATC), marginal cost (MC), and demand curves of the firm.

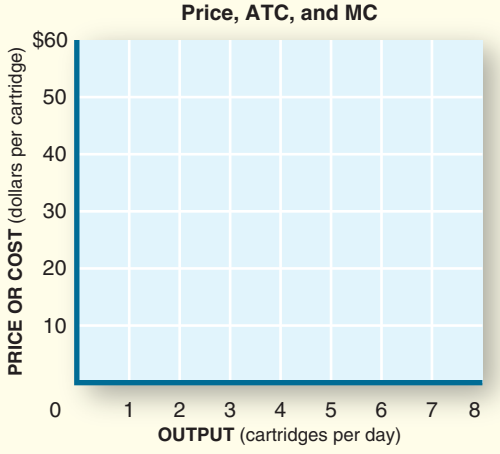
(*d*) What is the profit-maximizing rate of output? _____

(*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 9

Name: _____

connect ECONOMICS

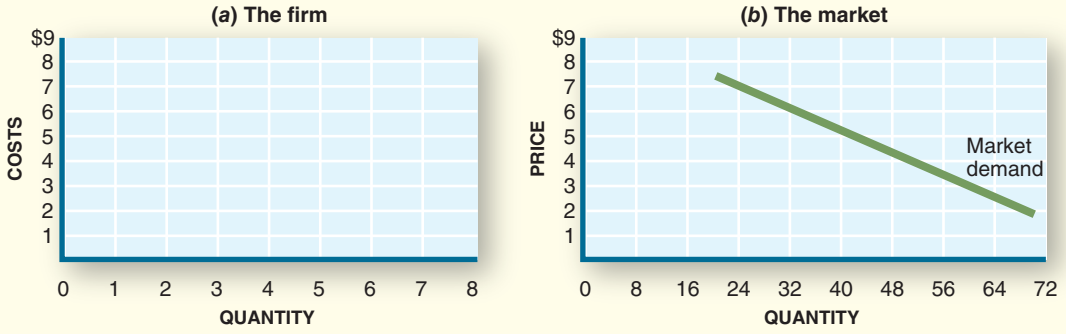
LO9-3 1. According to the News on page 204,
(*a*) How many years elapsed between IBM's entry and exit of the home computer market? _____
(*b*) By what percentage did IBM cut the price of its low-end computer in a single year? _____

LO9-2 2. According to Table 9.1,
(*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? _____

LO9-1 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? _____




LO9-1 4. Suppose the following data describe the demand for liquid-diet beverages:

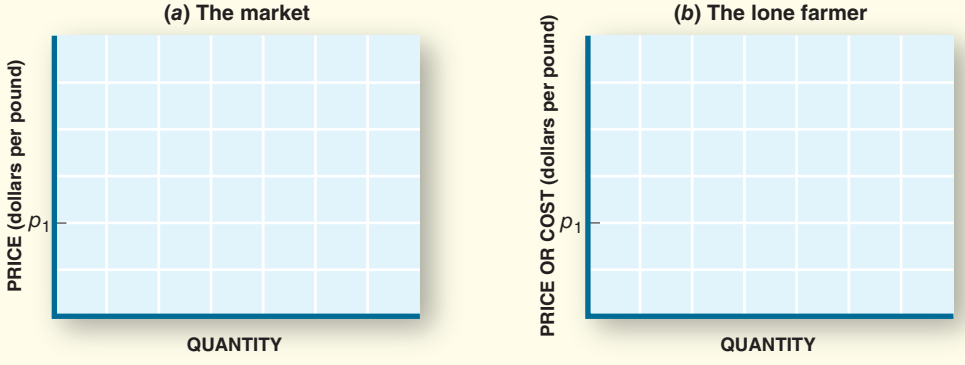
| Price | $11 | $10 | $9 | $8 | $7 | $6 | $5 | $4 | $3 | $2 |
|---|---|---|---|---|---|---|---|---|---|---|
| Quantity demanded | 7 | 10 | 13 | 16 | 19 | 22 | 25 | 28 | 31 | 34 |

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? _____

LO9-3 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.



## PROBLEMS FOR CHAPTER 9 (cont'd) Name: _____

LO9-2 6. According to Table 9.1,
(*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? _____

LO9-2 7. According to the World View on page 194,
(*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? _____

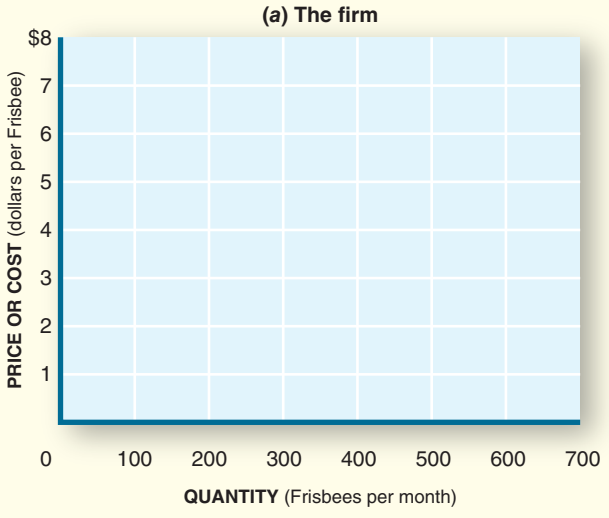
LO9-4 8. Suppose that the monthly market demand schedule for Frisbees is

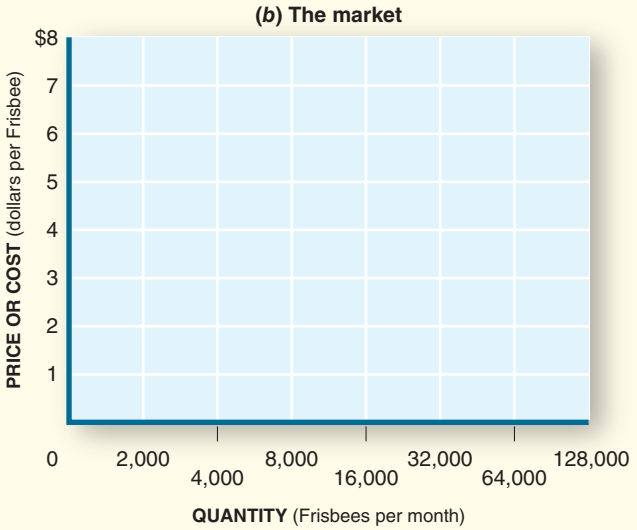
| Price | $8 | $7 | $6 | $5 | $4 | $3 | $2 | $1 |
|---|---|---|---|---|---|---|---|---|
| Quantity demanded | 1,000 | 2,000 | 4,000 | 8,000 | 16,000 | 32,000 | 64,000 | 128,000 |

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 10

Name: _____

connect ECONOMICS

LO10-1 1. Use Figures 10.2 and 10.3 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? _____

LO10-1 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? _____

LO10-1 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?

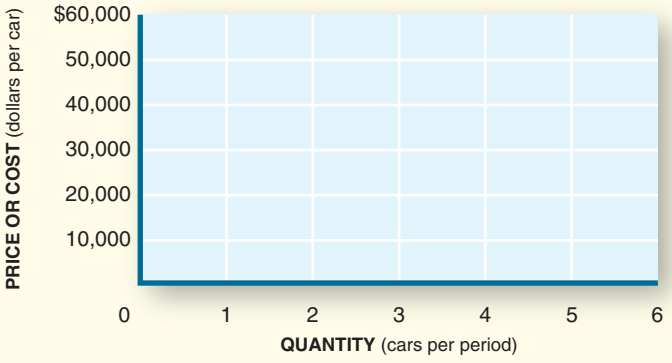
Output _____

Price _____

Profit _____

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

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




LO10-2 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 10 (cont'd) Name: _____

LO10-3 5. According to the News on page 230,

(*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? _____

LO10-2 6. By how much did the price of the heart drug for babies increase when a monopoly was established (News, p. 225)? $ _____

LO10-2 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? _____

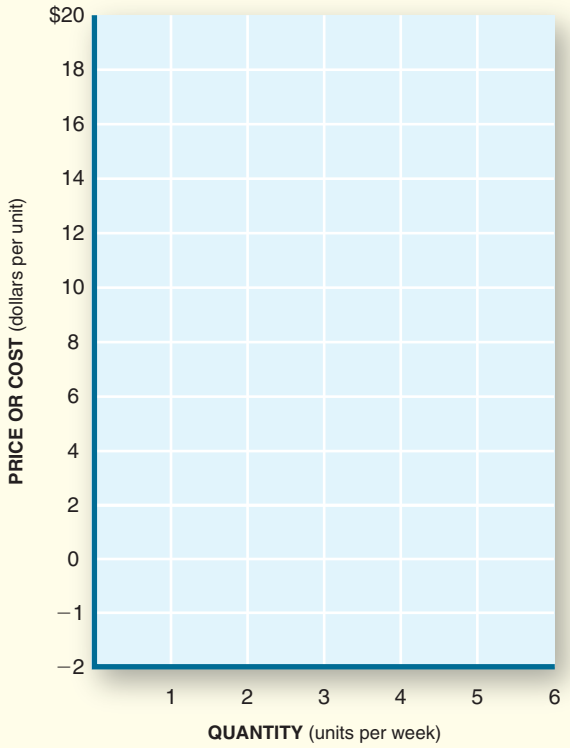
(*d*) What are the values of MR and MC at the revenue-maximizing rate of output? MR _____ MC _____

(*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? _____



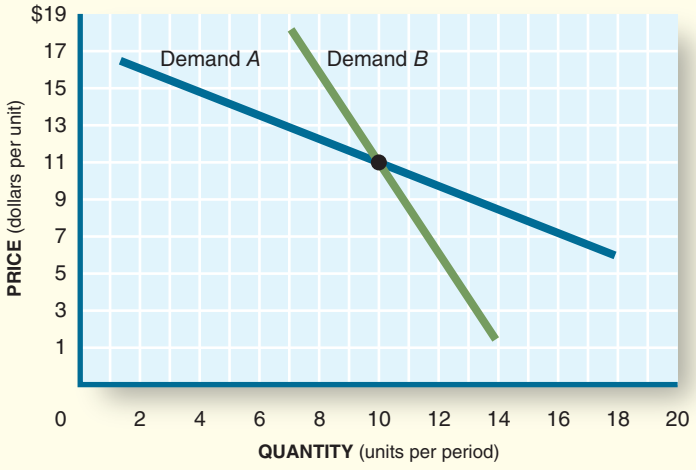
# PROBLEMS FOR CHAPTER 11

Name: _____

LO11-1 1. According to Table 11.2, in how many markets do fewer than four firms produce at least 80 percent of total output? _____

LO11-2 2. According to the News on page 246,
(*a*) What is the concentration ratio in the U.S. soda market? _____
(*b*) What is the *maximum* value of the Herfindahl-Hirshman Index? _____

LO11-3 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? _____

LO11-3 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. 250.) _____

LO11-3 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? _____

## PROBLEMS FOR CHAPTER 11 (cont'd) Name: _____

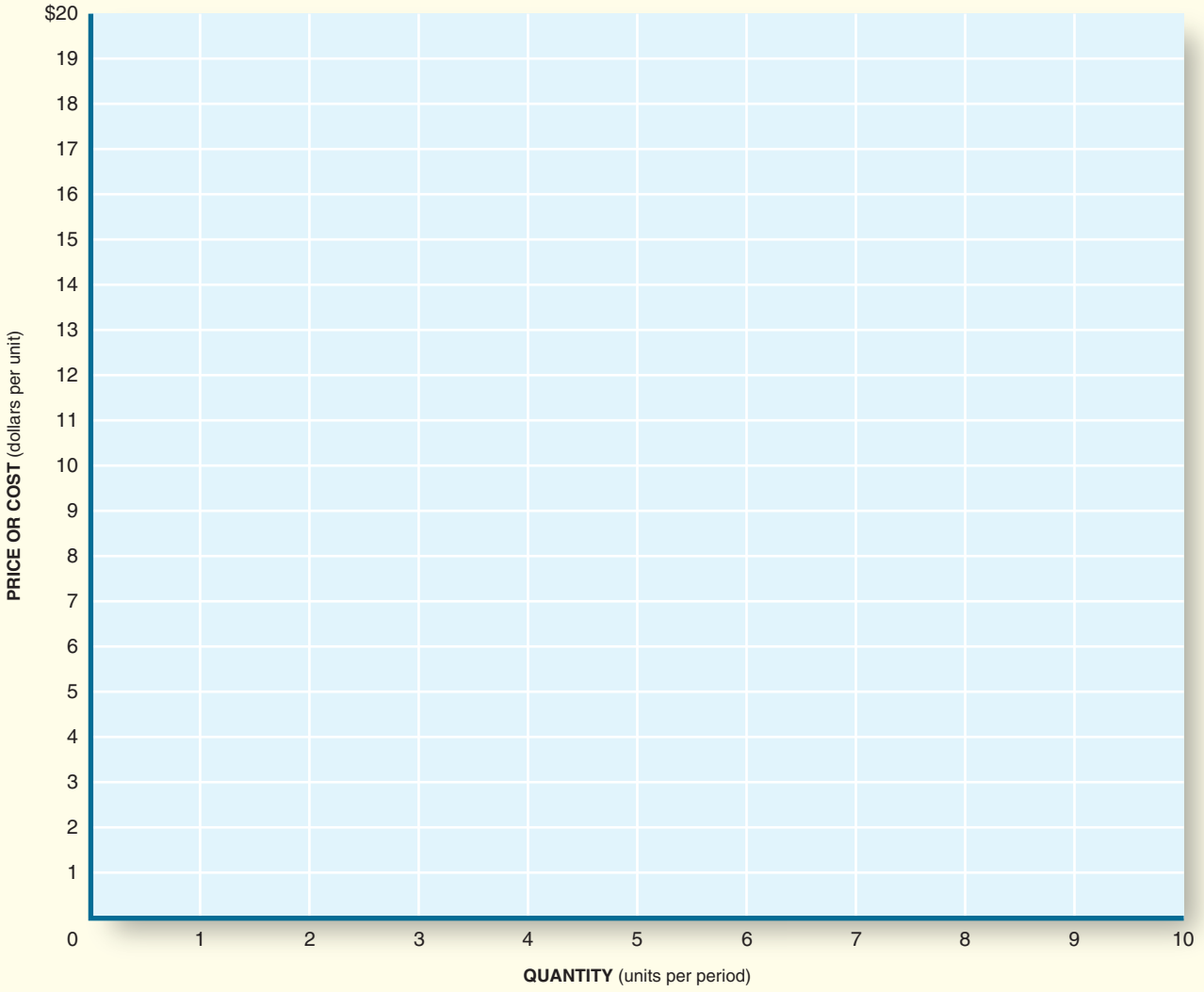
LO11-2 6. Suppose that the following schedule summarizes the sales (demand) situation confronting an oligopolist:

| 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. _____




LO11-2 7. What is the price elasticity of demand between points *F* and *G* in Figure 11.2? _____

LO11-3 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. 252)? _____%

LO11-3 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 12

Name: _____

connect ECONOMICS

LO12-1 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 |

_____

LO12-2 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? _____

LO12-3 3. In Figure 12.3,

(*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? _____

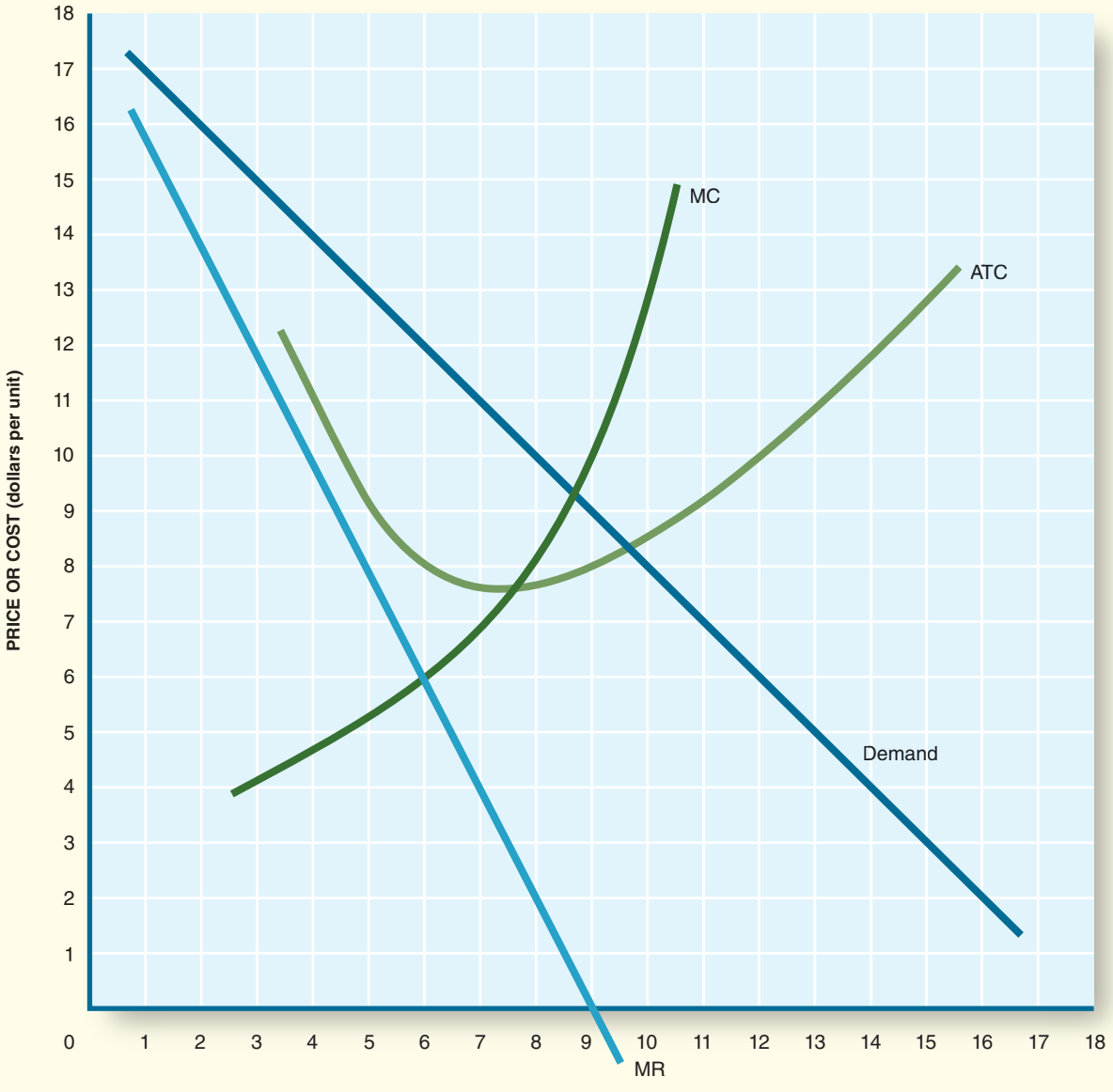
LO12-3 4. (*a*) Use the accompanying graph to illustrate the short-run equilibrium of a monopolistically competitive firm.

(*b*) At that equilibrium, what is

(*i*) Price? _____

(*ii*) Output? _____

(*iii*) Total profit? _____



 Name: _____

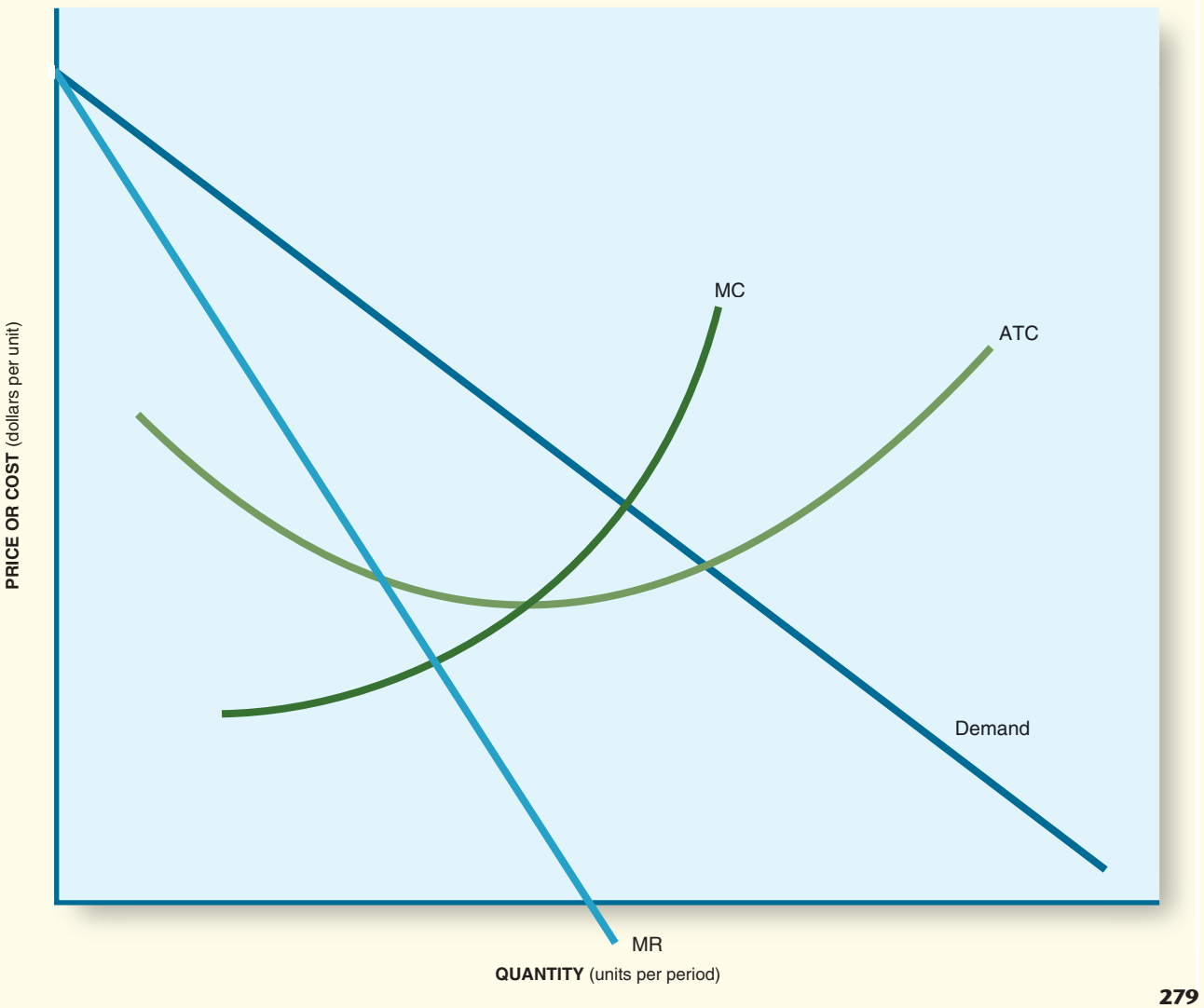
(*c*) Identify the long-run equilibrium of the same firm.
(*d*) In long-run equilibrium, what is (approximately)

(*i*) Price? _____
(*ii*) Output? _____
(*iii*) Total profit? _____

LO12-4 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? _____

LO12-1 6. According to the News on page 267,
(*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? _____%

LO12-4 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 13

Name: _____

LO13-2 1. In Figure 13.2,

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

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

LO13-1 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 13.2) in

(*a*) An unregulated natural monopoly? _____

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

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

LO13-2 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 |

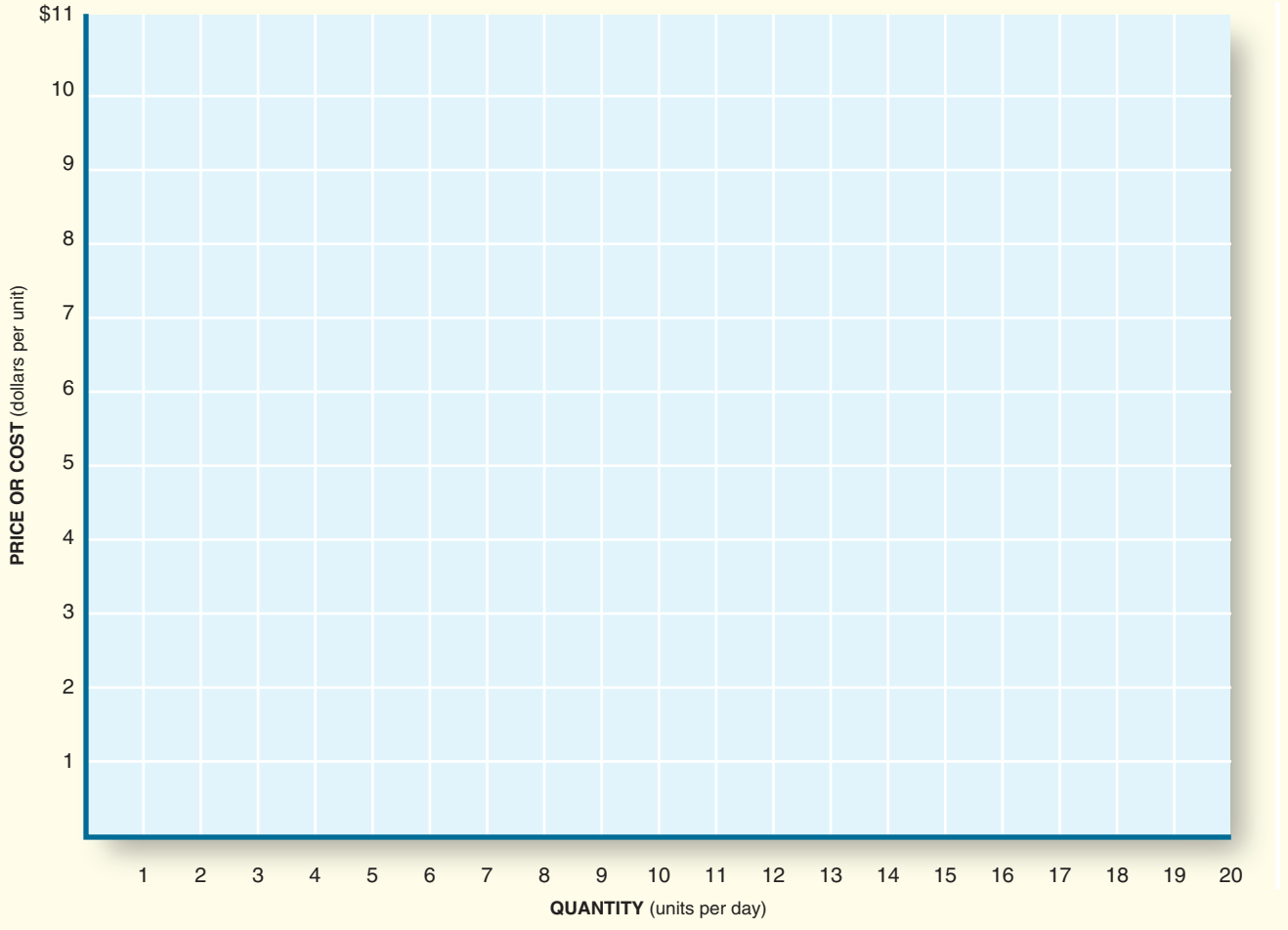
Under these conditions,

(*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 13 (cont'd)

Name: _____

LO13-3 4. According to the News on page 290, how much will annual shipping costs increase for each saved life? _____

LO13-3 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 13.1)? _____

LO13-4 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 14

Name: _____

LO14-2 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. 314)? $ _____

LO14-3 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? _____

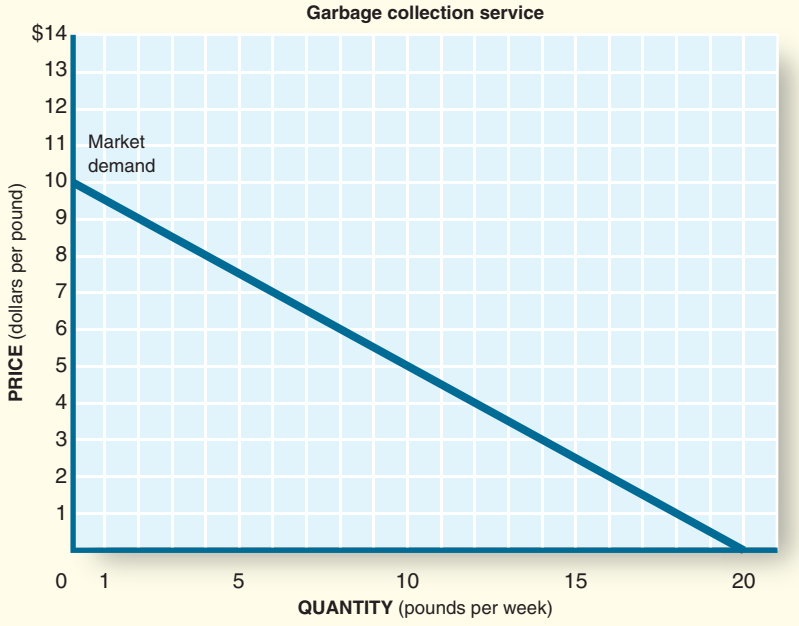
LO14-1 3. Most people pay nothing for each extra pound of garbage they create. Yet the garbage imposes external costs on a community. In view of this factor, what's an appropriate price for garbage collection? Answer the questions based on the following graph.

(*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? _____




LO14-3 4. Using the *high* estimate of costs and *low* estimate of benefits for pollution controls (News, p. 316), what is the average benefit per dollar spent? _____

LO14-3 5. How much more per ton is New York City paying to recycle rather than just dump its garbage (News, p. 317)? _____

## PROBLEMS FOR CHAPTER 14 (cont'd) Name: _____

LO14-2 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)? _____

LO14-1 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.

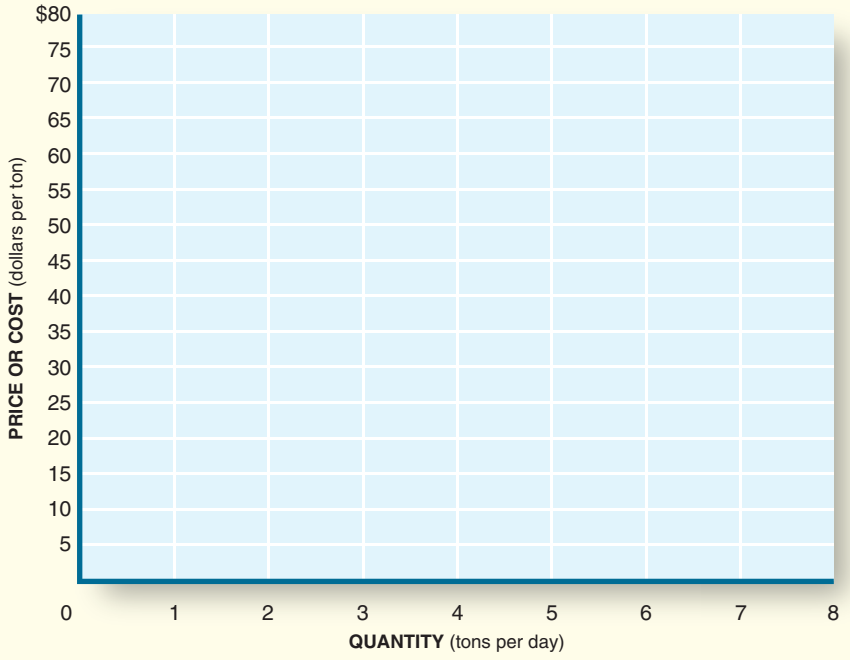
(*b*) What is the profit-maximizing rate of output for this competitive firm? _____

(*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 15

Name: _____

LO15-2 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 15.2.) _____

(*b*) How much of a countercyclical payment per bushel would the farmer receive? (See Table 15.3.) _____

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

LO15-1 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? _____

LO15-3 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? _____

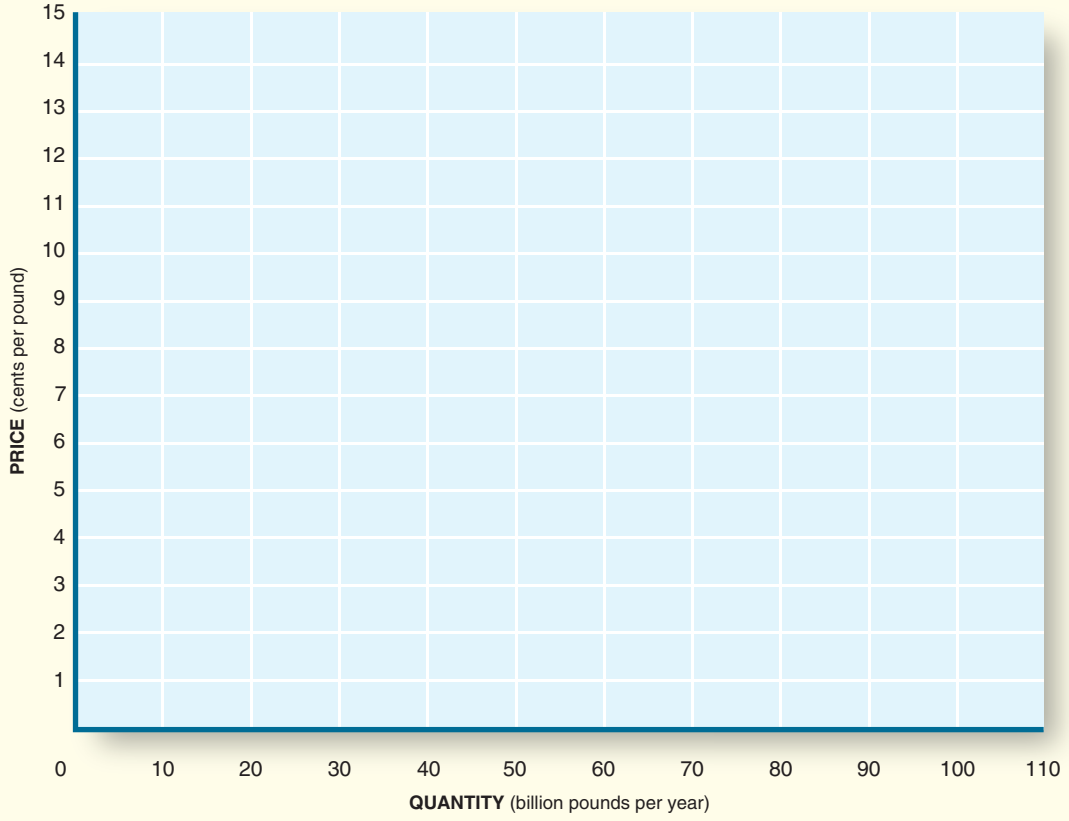
(*b*) Suppose that the farmers' response to the government's offer to pay them for not producing milk results in the following supply schedule:

| 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.



## PROBLEMS FOR CHAPTER 15 (cont'd) Name: _____

LO15-3 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? _____

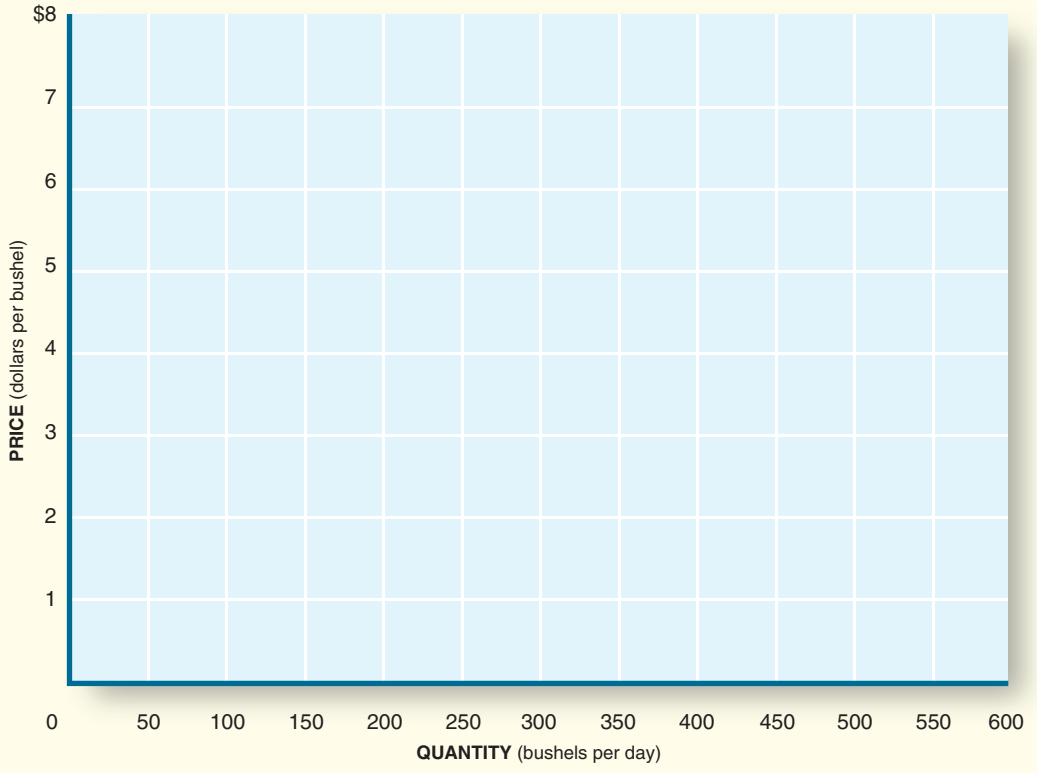
(*iii*) Profit? _____

(*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 16 Name: _____

LO16-1 1. (*a*) How many runs did Joe Mauer score (home runs + RBIs) in 2010? (See News, p. 353). _____
(*b*) If his annual salary were based on runs alone, how much would each run be worth? _____

LO16-2 2. By what percentage did
(*a*) The federal minimum wage increase between July 1990 and July 2010? (See Table 16.2.) _____
(*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.) _____

LO16-1 3. According to the News on page 343, what was the situation in the 2009 NYC labor market?
A: Labor surplus B: Labor shortage C: Equilibrium _____

LO16-3 4. According to the News on page 357, what percentage of retail jobs would be lost if the minimum wage were increased to $9.50? _____

LO16-3 5. (*a*) According to Figure 16.8, how many workers are unemployed at the equilibrium wage? _____
(*b*) How many workers are unemployed at the minimum wage? _____

LO16-1 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? _____

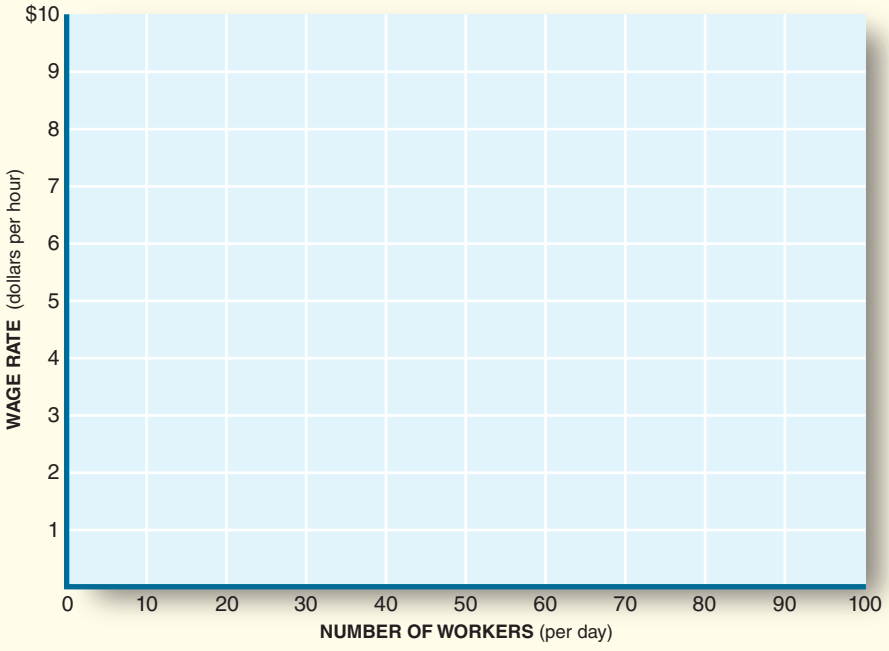
LO16-1 7. If the price of strawberries doubled, how many pickers would be hired at $4 an hour, according to Table 16.1? _____

LO16-3 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? _____

LO16-3 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 16 (cont'd) Name: _____

LO16-2 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 |

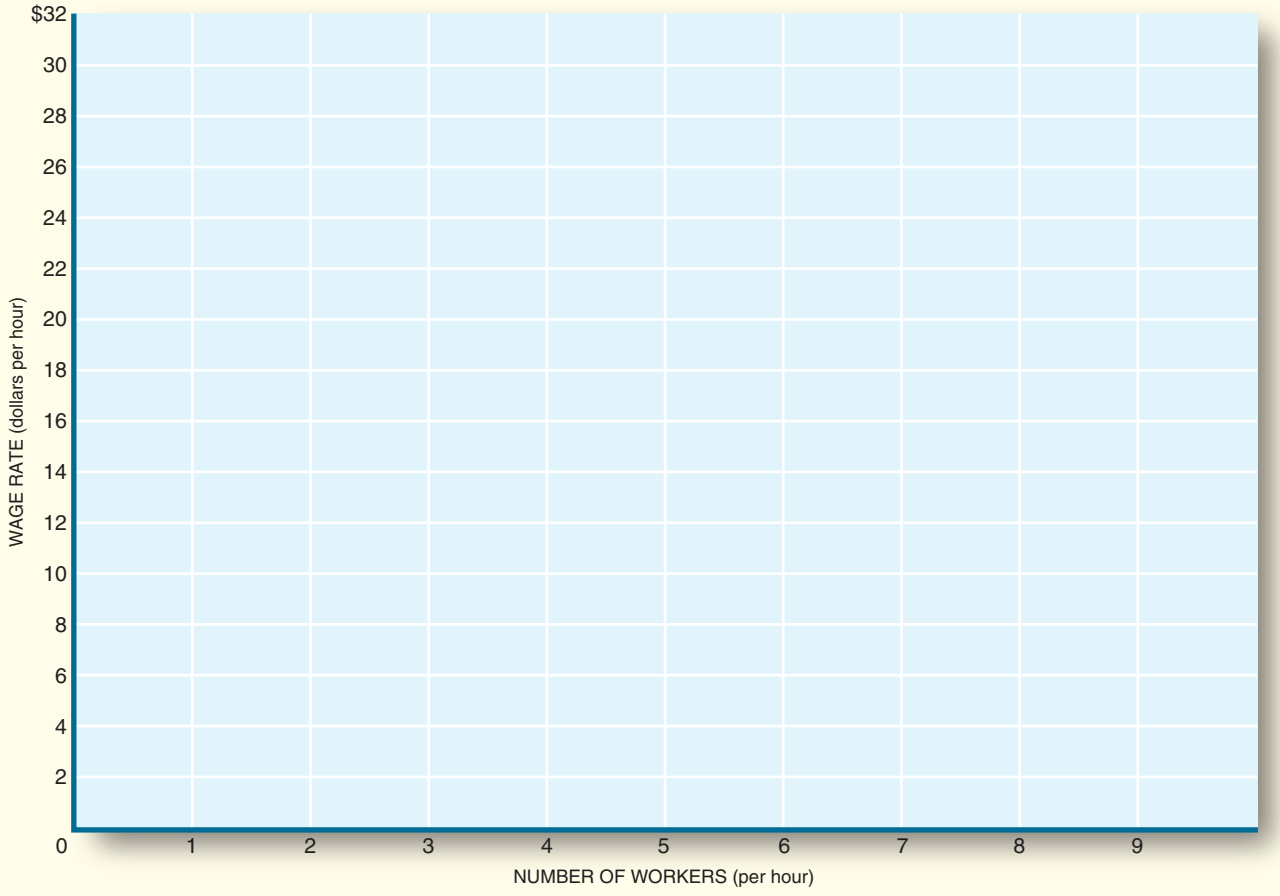
(*a*) Illustrate the supply and demand of labor for a single farmer, assuming that the local wage rate is $6 an hour and a flat of grapes sells for $2.

(*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.




LO16-3 11. By how much would the quantity of labor demanded have decreased as the result of the 2009 hike in the minimum wage (Table 16.2) if the elasticity of labor demand were 0.10? _____%

## PROBLEMS FOR CHAPTER 17

Name: _____

connect ECONOMICS

LO17-1 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? _____

LO17-1 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 | ___ | ___ | ___ | ___ | ___ | ___ | ___ |

LO17-2 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? _____

LO17-2 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 17 (cont'd) Name: _____

LO17-3 5. Suppose the following supply and demand schedules apply in a particular labor market:

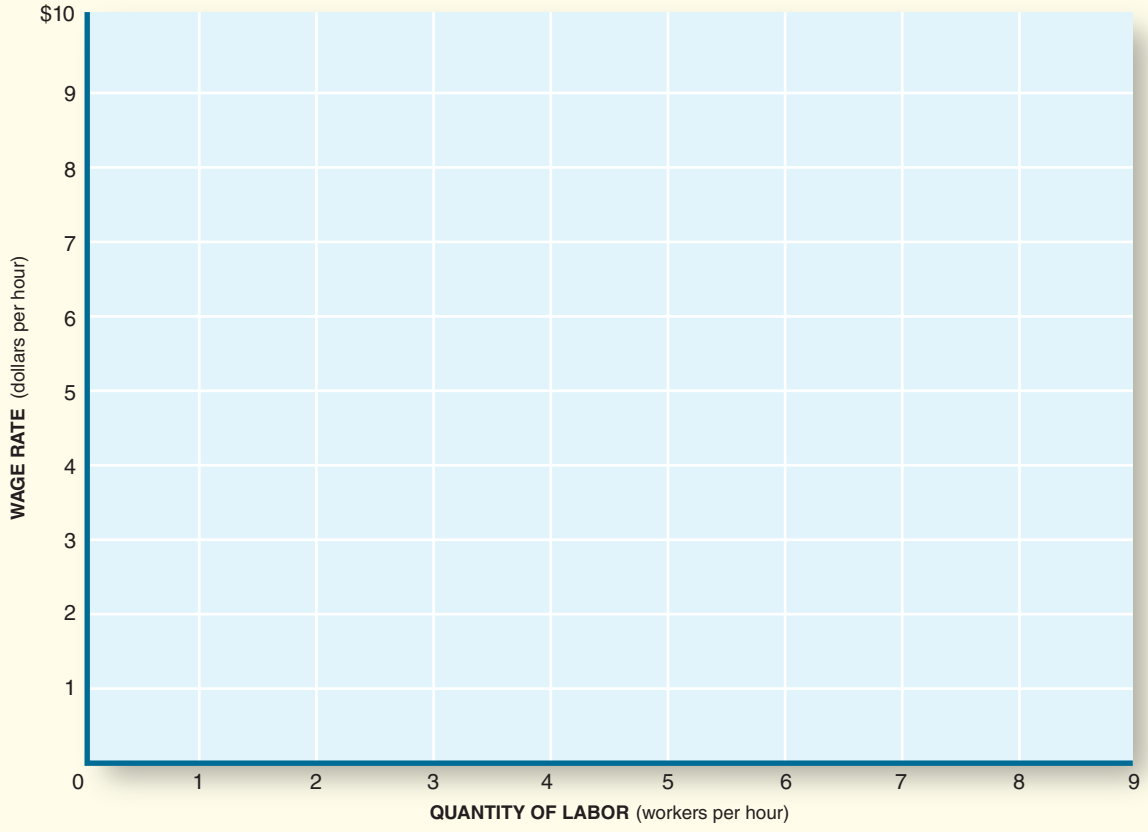
| Wage rate (per hour) | $4 | $5 | $6 | $7 | $8 | $9 | $10 |
|---|---|---|---|---|---|---|---|
| Quantity of labor supplied (workers per hour) | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Quantity of labor demanded (workers per hour) | 6 | 5 | 4 | 3 | 2 | 1 | 0 |

Graph the relevant curves and identify the

(*a*) Competitive wage rate. _____

(*b*) Union wage rate. _____

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



## PROBLEMS FOR CHAPTER 18

Name: _____

connect ECONOMICS

LO18-3 1. If a $60 stock pays a quarterly dividend of $1, what is the implied annual rate of return? _____%

LO18-3 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? _____%

LO18-3 3. According to the data in Table 18.3,
(*a*) How much profit per share did Google earn? $_____
(*b*) How much of that profit did it pay out in dividends? $_____

LO18-3 4. According to the data in Table 18.3,
(*a*) How much profit per share did Intel earn? $_____
(*b*) How much of that profit did it pay out in dividends? $_____

LO18-1 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? _____

LO18-1 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? _____

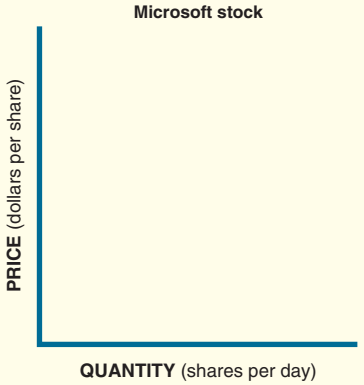
LO18-4 7. What was the expected return on Columbus's expedition, assuming that he had a 50 percent chance of discovering valuables worth $1 million, a 25 percent chance of bringing home only $10,000, and a 25 percent chance of sinking? _____

LO18-3 8. Compute the market price of the GM bonds described in Table 18.5 if the yield falls to 20 percent. _____

LO18-3 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? _____

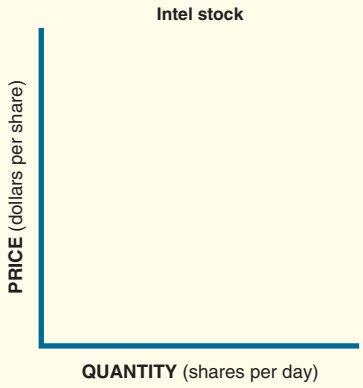
LO18-4 10. How much interest accrued each day on the immediate cash payoff of the MegaMillions jackpot? (See Table 18.1.) _____

LO18-4 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? _____



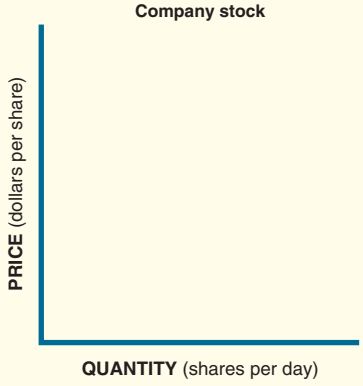
(*b*) Intel announces a new and faster processor. Which way did

(*i*) Demand shift? _____
(*ii*) Supply shift? _____



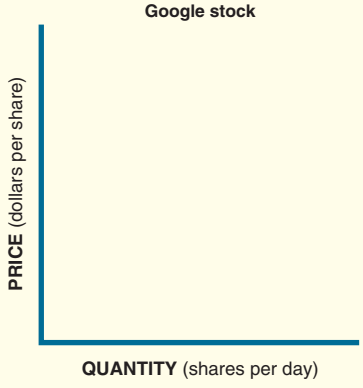

(*c*) Corporate executives announce that they intend to sell a large block of stock. Which way did

(*i*) Demand shift? _____
(*ii*) Supply shift? _____




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

(*i*) Demand shift? _____
(*ii*) Supply shift? _____




LO18-2 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 19

Name: _____

LO19-2 1. How much more income tax would President Obama have paid in 2010 (News, p. 415) if he had used no "loopholes"? (Use the tax rates in Table 19.1.) $ _____

LO19-2 2. Had Obama succeeded in raising the top marginal tax rate (News, p. 417), how much more tax would he have paid in 2010? (Use the tax rates in Table 19.1 and the News on p. 415.) $ _____

LO19-2 3. In 2010 what was the Obamas'
(*a*) Nominal tax rate? _____%
(*b*) Effective tax rate? _____%

LO19-1 4. Use Table 19.1 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? _____%

LO19-1 5. Using Table 19.1, 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? _____

LO19-2 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? _____%

LO19-2 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? _____%

LO19-2 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. 421)? _____%

LO19-2 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) _____

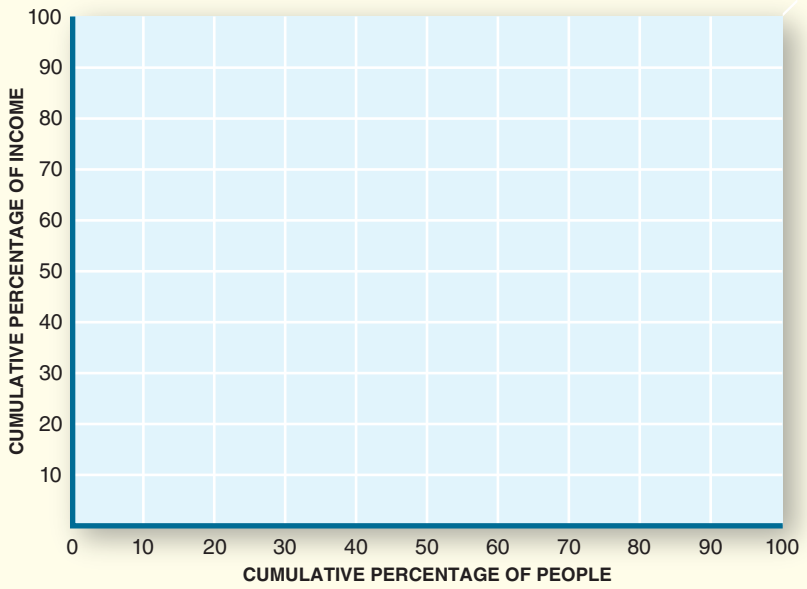
LO19-3 10. What is the effective tax rate with Dick Armey's proposed flat tax (p. 422) for a family of four with earnings of
(*a*) $35,000? _____%
(*b*) $60,000? _____%
(*c*) $100,000? _____%

LO19-1 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? _____

LO19-1 12. If Obama's proposed marginal tax rates (News, p. 417) were enacted, by how much would the total tax increase for the example on page 412? $ _____




LO19-3 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? _____

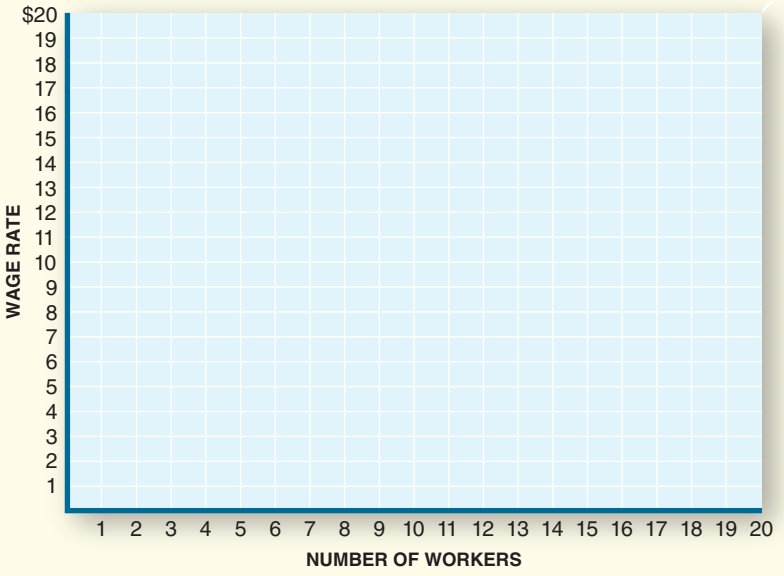
(*f*) How much is the employer paying for each worker? _____

(*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 20

Name: _____

LO20-2 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? _____

LO20-2 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? _____

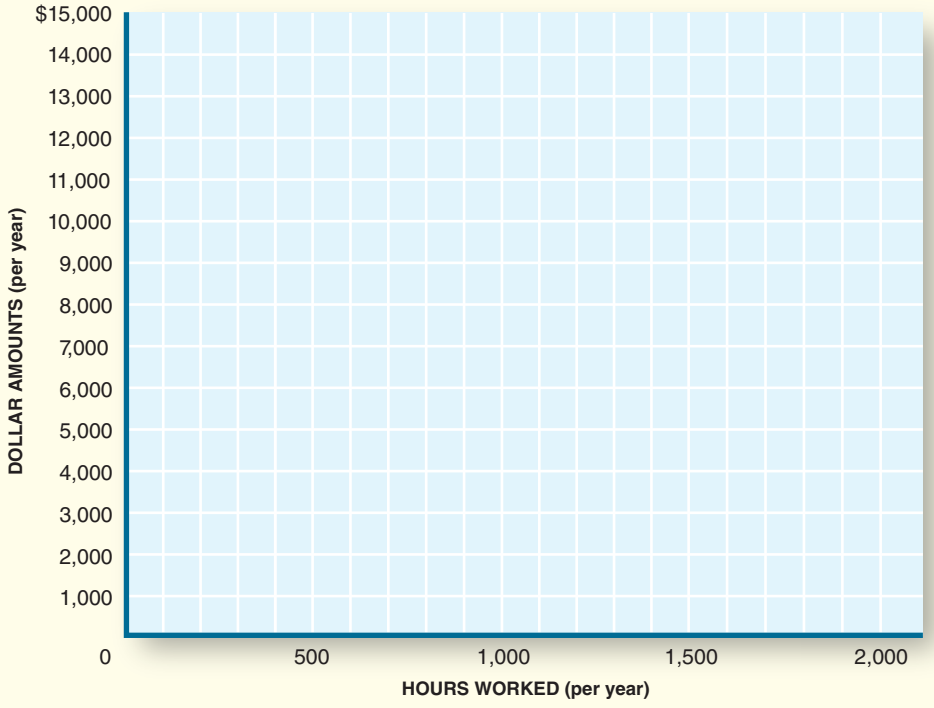
LO20-3 3. Draw a graph showing how benefits, total income, and wages change under the following conditions:

$$\text{Wage rate} = \$10 \text{ per hour}$$
$$\text{Welfare benefit} = \$5{,}000 - 0.5\,(\text{Wages} > \$3{,}000)$$

Identify here and label on the graph the following points:

*A*—welfare benefit when wages = 0
*B*—welfare benefit when wages = $10,000
*C*—breakeven level of income

(*a*) How much is that benefit? _____
(*b*) How much is that benefit? _____
(*c*) What is that income level? _____



## PROBLEMS FOR CHAPTER 20 (cont'd) Name: _____

LO20-3 4. What is the breakeven level of income for Social Security as depicted in Figure 20.6? _____

LO20-3 5. According to the benefit formula in Table 20.2, 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? _____

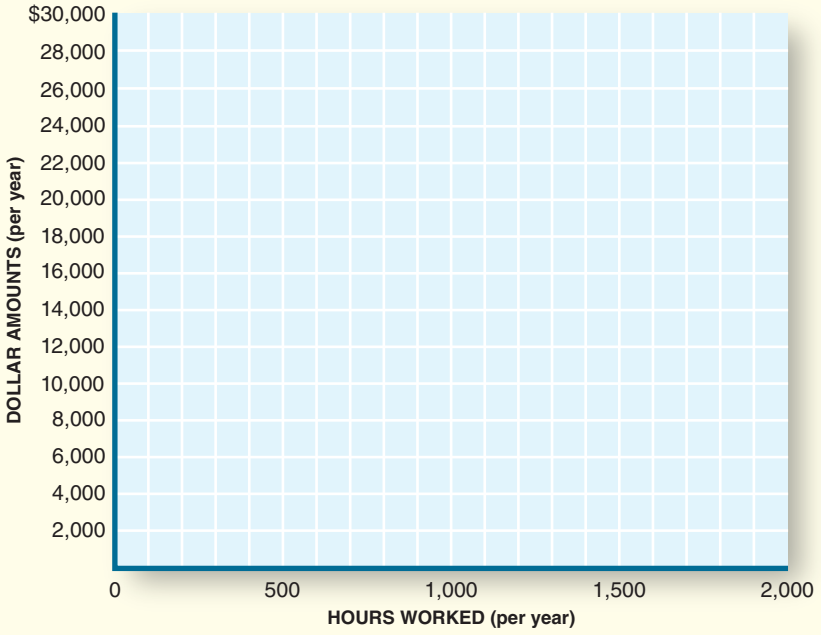
What is the marginal wage replacement rate for

(*c*) The $24,000 per year worker? _____
(*d*) The $60,000 per year worker? _____

LO20-3 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 20.2.) _____

LO20-3 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? _____




LO20-3 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.) _____%

LO20-1 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 21

Name: _____

LO21-2 1. Which countries are the two largest export markets for the United States? (See Table 21.3.) (1) _____ (2) _____

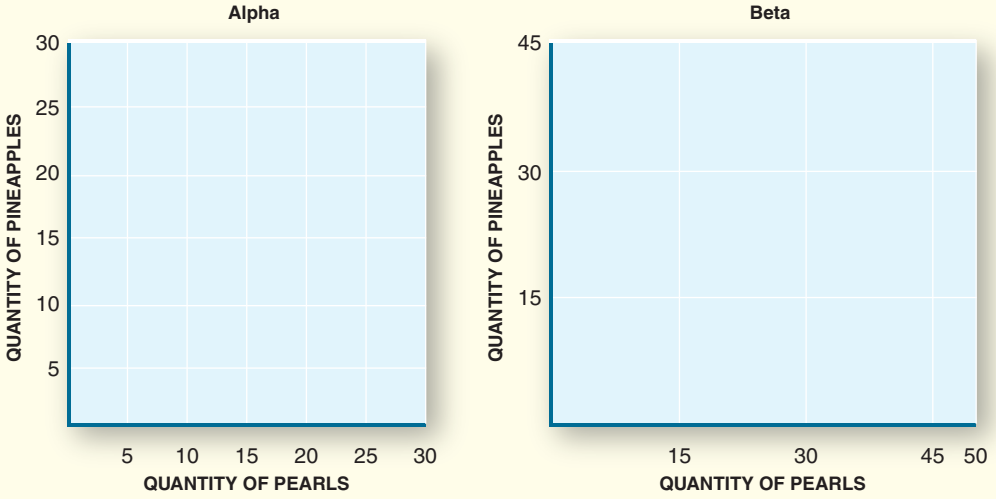
LO21-1 2. Suppose a country can produce a maximum of 20,000 jumbo airliners or 2,000 aircraft carriers.
(*a*) What is the opportunity cost of an aircraft carrier? _____
(*b*) If another country offers to trade six planes for one aircraft carrier, should the offer be accepted? _____
(*c*) What is the implied price of the carrier in trade? _____

LO21-1 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? _____

LO21-2 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? _____




LO21-3 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. 463.) _____
(*b*) How much sales revenue are foreign sugar producers losing as a result of those same quotas? _____

## PROBLEMS FOR CHAPTER 21 (cont'd) Name: _____

LO21-2 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? _____

LO21-3 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*) Domestic production. _____

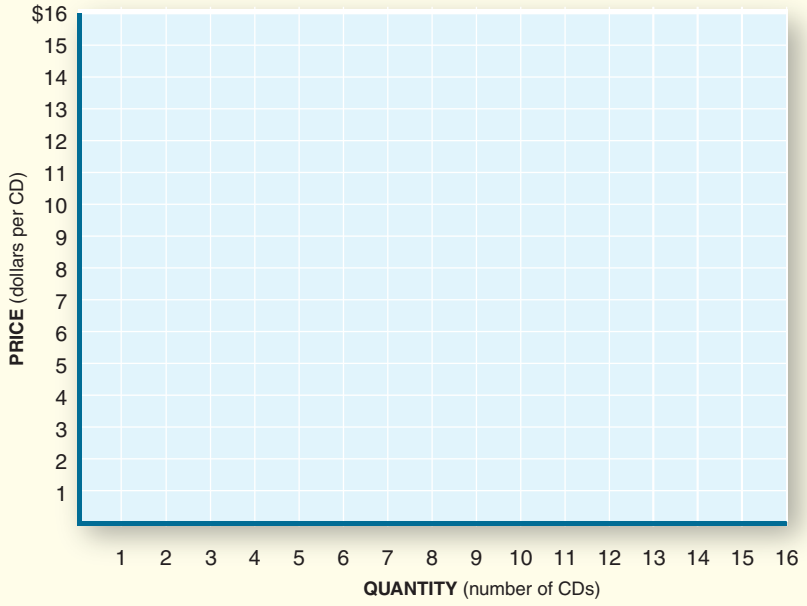
(*c*) If a tariff of $2 per CD is imposed, what will be

(*i*) The market price? _____

(*ii*) Domestic consumption? _____

(*iii*) Domestic production? _____

Graph your answers.



## PROBLEMS FOR CHAPTER 22

Name: _____

connect ECONOMICS

LO22-2 1. According to the World View on page 474, which nation had
(*a*) The cheapest currency? _____
(*b*) The most expensive currency? _____

LO22-2 2. If a euro is worth $1.40, what is the euro price of a dollar? _____

LO22-3 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? _____

LO22-2 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? _____

LO22-2 5. Between 1980 and 2003, by how much did the dollar appreciate (Figure 22.3)? _____%

LO22-1 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? _____%

LO22-2 7. According to the World View on page 474, what was the peso price of a euro in May 2011? _____

LO22-3 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. _____

LO22-3 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. _____

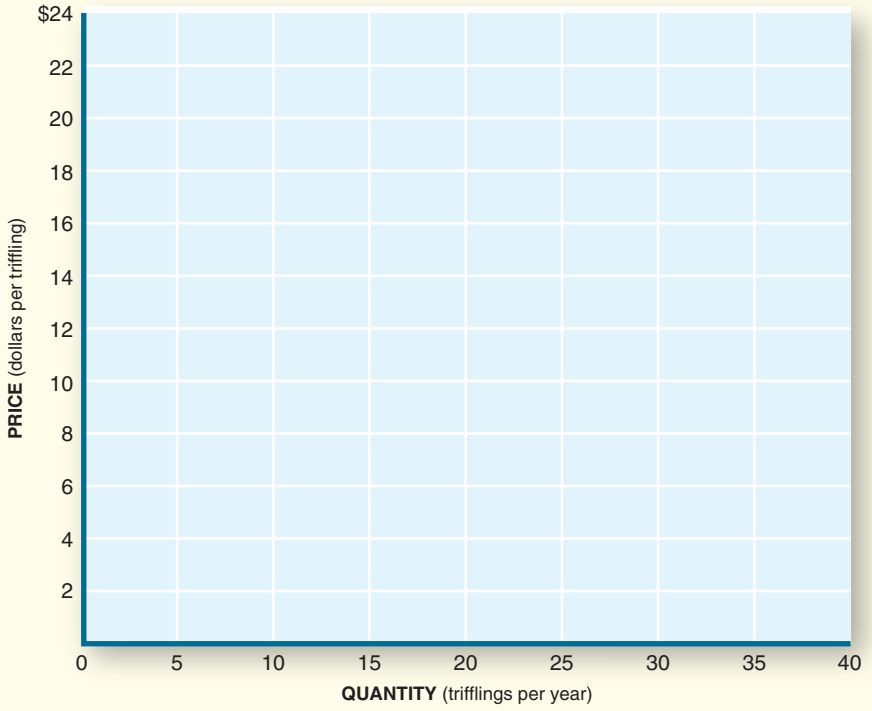
(*d*) Which of the following events would help reduce the payments imbalance? Which would not? (A = helps; B = doesn't help)

(*i*) Domestic inflation. _____

(*ii*) Foreign inflation. _____

(*iii*) Slower domestic growth. _____

(*iv*) Faster domestic growth. _____




LO22-3 10. As shown in Table 22.1, 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. _____

LO22-2 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 23

Name: _____

connect ECONOMICS

LO23-1 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? _____ %

LO23-2 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? _____ %

LO23-2 3. In Namibia,
- (*a*) What percentage of total output is received by the richest 10 percent of households? (See World View, p. 495.) _____ %
- (*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? $_____

LO23-3 4. (*a*) How much foreign aid does the United States now provide? (See Table 23.2.) $_____
- (*b*) How much more is required to satisfy the UN's Millennium Aid Goal if U.S. GDP = $15 trillion? $_____

LO23-3 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 23.2.) $_____

LO23-3 6. According to Table 23.3, how many years will it take for per capita GDP to double in
- (*a*) China? _____
- (*b*) Madagascar? _____
- (*c*) Zimbabwe? _____

LO23-3 7. (*a*) Which low-income nation in Table 23.3 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? _____ %

LO23-3 8. According to the World View on page 497,
- (*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? $_____