QUESTIONS FOR REVIEW

1. Define the price elasticity of demand and the income elasticity of demand.
2. List and explain the four determinants of the price elasticity of demand discussed in the chapter.
3. If the elasticity is greater than 1, is demand elastic or inelastic? If the elasticity equals zero, is demand perfectly elastic or perfectly inelastic?
4. On a supply-and-demand diagram, show equilibrium price, equilibrium quantity, and the total revenue received by producers.
5. If demand is elastic, how will an increase in price change total revenue? Explain.
6. What do we call a good with an income elasticity less than zero?
7. How is the price elasticity of supply calculated? Explain what it measures.
8. If a fixed quantity of a good is available, and no more can be made, what is the price elasticity of supply?
9. A storm destroys half the fava bean crop. Is this event more likely to hurt fava bean farmers if the demand for fava beans is very elastic or very inelastic? Explain.

PROBLEMS AND APPLICATIONS

1. For each of the following pairs of goods, which good would you expect to have more elastic demand and why?
   a. required textbooks or mystery novels
   b. Beethoven recordings or classical music recordings in general
   c. subway rides during the next 6 months or subway rides during the next 5 years
   d. root beer or water
2. Suppose that business travelers and vacationers have the following demand for airline tickets from New York to Boston:

Price	Quantity Demanded (business travelers)	Quantity Demanded (vacationers)
$150	2,100 tickets	1,000 tickets
200	2,000	800
250	1,900	600
300	1,800	400

   a. As the price of tickets rises from $200 to $250, what is the price elasticity of demand for (i) business travelers and (ii) vacationers? (Use the midpoint method in your calculations.)
   b. Why might vacationers have a different elasticity from business travelers?
3. Suppose the price elasticity of demand for heating oil is 0.2 in the short run and 0.7 in the long run.
   a. If the price of heating oil rises from $1.80 to $2.20 per gallon, what happens to the quantity of heating oil demanded in the short run? In the long run? (Use the midpoint method in your calculations.)
   b. Why might this elasticity depend on the time horizon?
4. A price change causes the quantity demanded of a good to decrease by 30 percent, while the total revenue of that good increases by 15 percent. Is the demand curve elastic or inelastic? Explain.
5. Cups of coffee and donuts are complements. Both have inelastic demand. A hurricane destroys half the coffee bean crop. Use appropriately labeled diagrams to answer the following questions.
   a. What happens to the price of coffee beans?
   b. What happens to the price of a cup of coffee? What happens to total expenditure on cups of coffee?
   c. What happens to the price of donuts? What happens to total expenditure on donuts?
6. The price of coffee rose sharply last month, while the quantity sold remained the same. Five people suggest various explanations:

   LEONARD: Demand increased, but supply was perfectly inelastic.
   SHELDON: Demand increased, but it was perfectly inelastic.
   PENNY: Demand increased, but supply decreased at the same time.
   HOWARD: Supply decreased, but demand was unit elastic.
   RAJ: Supply decreased, but demand was perfectly inelastic.

   Who could possibly be right? Use graphs to explain your answer.

7. Suppose that your demand schedule for pizza is as follows:

Price	Quantity Demanded (income = $20,000)	Quantity Demanded (income = $24,000)
$8	40 pizza	50 pizza
10	32	45
12	24	30
14	16	20
16	8	12

   a. Use the midpoint method to calculate your price elasticity of demand as the price of pizza increases from $8 to $10 if (i) your income is $20,000 and (ii) your income is $24,000.
   b. Calculate your income elasticity of demand as your income increases from $20,000 to $24,000 if (i) the price is $12 and (ii) the price is $16.

8. The *New York Times* reported (Feb. 17, 1996) that subway ridership declined after a fare increase: "There were nearly four million fewer riders in December 1995, the first full month after the price of a token increased 25 cents to $1.50, than in the previous December, a 4.3 percent decline."
   a. Use these data to estimate the price elasticity of demand for subway rides.
   b. According to your estimate, what happens to the Transit Authority's revenue when the fare rises?
   c. Why might your estimate of the elasticity be unreliable?

9. Two drivers, Walt and Jessie, each drive up to a gas station. Before looking at the price, each places an order. Walt says, "I'd like 10 gallons of gas." Jessie says, "I'd like $10 worth of gas." What is each driver's price elasticity of demand?

10. Consider public policy aimed at smoking.
    a. Studies indicate that the price elasticity of demand for cigarettes is about 0.4. If a pack of cigarettes currently costs $5 and the government wants to reduce smoking by 20 percent, by how much should it increase the price?
    b. If the government permanently increases the price of cigarettes, will the policy have a larger effect on smoking 1 year from now or 5 years from now?
    c. Studies also find that teenagers have a higher price elasticity of demand than adults. Why might this be true?

11. You are the curator of a museum. The museum is running short of funds, so you decide to increase revenue. Should you increase or decrease the price of admission? Explain.

12. Explain why the following might be true: A drought around the world raises the total revenue that farmers receive from the sale of grain, but a drought only in Kansas reduces the total revenue that Kansas farmers receive.

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