ACTIVITY 23
Applying Elasticity to the Real World

Each of the following stories contains an assumption about elasticity of demand. For each story:

a. State whether the assumption made about the elasticity of demand is correct or is wrong.
b. Justify your answer.

1. I.M. Politico, a candidate for the state legislature, is proposing a large increase in the tax on cigarettes and liquor. He says, "I'm not proposing these taxes to raise revenue but to discourage reckless drinking and the filthy smoking habit. If the prices of cigarettes and booze go up, most people will quit using them. After all, no one needs to drink or smoke."

   a.

   b.

2. U.R. Kool, a candidate for Congress, proposes freezing the price of gasoline. "There is no substitute for gasoline," he says. "People have to get from one place to another. Economists who say higher prices will discourage people from buying as much gas as before don't live in the real world."

   a.

   b.

3. Councilman Vic Acqua opposed a price increase for water during a recent drought. He claimed that there is no substitute for water, and that therefore the demand for water is inelastic. He believes an increase in the price of water (water taxes) will result in the same quantity of water used as before the price went up.

   a.

   b.

4. Sky King, world traveler, says if the airlines want to attract more passengers, they should lower fares for business travelers as well as for vacationers. Both groups should respond equally to a price decrease.

   a.

   b.

From *Master Curriculum Guide in Economics: Teaching Strategies for High School Economics Courses* (New York: National Council on Economic Education, 1985), p.95.

ACTIVITY 24
Elasticity Coefficients

So far, you have used the total revenue method to determine if demand was elastic, inelastic, or unit elastic. Now it is time to get more precise. To gain this precision, economists calculate price *elasticity of demand* (*Ed*) coefficients. The price elasticity of demand coefficient is calculated by dividing the percentage change in quantity demanded by the percentage change in price.

$$Ed = \frac{\text{percentage change in quantity demanded}}{\text{percentage change in price}}$$

Because of different bases, the formula works like this:

$$Ed = \frac{\frac{\Delta Q}{(Q_1 + Q_2)/2}}{\frac{\Delta P}{(P_1 + P_2)/2}}$$

Because the relationship of quantity demanded and price is inverse, the coefficient will always yield a negative number. However, because it is understood to be negative, we drop the negative symbol. If E is greater than 1, demand is elastic. If E is less than 1, demand is inelastic. If $E = 1$, demand is unit elastic.

1. Suppose you are given the following data on the market demand for compact discs at a local store:

Local Market Demand for CDs

Price ($)	Quantity demanded per day
12	50
10	70
8	80
6	95

   a. What is the price elasticity of demand over the price range of $12 to $10?_____

   b. What is the price elasticity of demand over the price range of $10 to $8?_____

   The concept of price elasticity also applies to supply. Price *elasticity of supply* (*Es*) is defined as the percentage change in quantity supplied divided by the percentage change in the price of the good. The formula is

$$Es = \frac{\text{percentage change in quantity supplied}}{\text{percentage change in price}}$$

   Because of different bases, the formula works like this:

$$Es = \frac{\frac{\Delta Q}{(Q_1 + Q_2)/2}}{\frac{\Delta P}{(P_1 + P_2)/2}}$$

ACTIVITY 24 continued

Because price and quantity supplied are a direct relationship, there is no need to change the sign. If E is greater than 1, the elasticity of supply is elastic. If E is less than 1, the elasticity of supply is inelastic. If $E = 1$, elasticity of supply is unit elastic.

2. Suppose you are given some information on market supply for compact discs at a local store:

Local Market Supply for CDs

Price ($)	Quantity supplied per day
12	100
10	90
8	80
6	50

a. What is the price elasticity of supply over the price range of $12 to $10? _____

b. What is the price elasticity of supply over the price range of $10 to $8? _____

In addition to price elasticity of demand, economists determine income elasticity of demand. This measure relates the percentage change in the quantity of a good purchased to the percentage change in income. In most cases, the relationship is positive. An increase in income causes an increase in the quantity of the good purchased. These goods are called *normal goods*. In a few cases, the relationship is negative. These goods are called *inferior goods*. Steak is an example of a normal good; cabbage and turnips might be examples of inferior goods.

3. Suppose you are given the following information on the spending habits of a family:

A Family's Spending Habits

	Income per month	Quantity of potatoes demanded per month	Quantity of steak demanded per month
Year 1	$1,000	4 lb.	2 lb.
Year 2	$1,500	3 lb.	6 lb.

a. What is the income elasticity of demand for potatoes? _____

b. Are potatoes a normal or inferior good? _____

c. What is the income elasticity of demand for steak? _____

d. Is steak a normal or inferior good? _____

e. What qualities make a good inferior or normal?