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Econ 101
Offline HW 2

1. QUESTION :

Producing a quantity larger than the equilibrium of supply and demand is inefficient because...

ANSWER : C the marginal buyer's willingness to pay is positive but less than the marginal seller's cost.

2. QUESTION:

A friend of yours considering two cell phone service providers. Providers A charges $120 per month for the service regardless of the number of calls made. Providers B does not have a fixed service fee but instead charges $1 per minute for calls. Your friend's monthly demand for minutes of calling is giving by the equation, where P is the price of a minute.

a. With each providers, what is the cost to your friend of an extra minute on the phone?

b. In light of your answer to (a), how many minutes would your friend talk on the phone with each provider?

c. How much would he end up paying each provider every month?

d. How much consumer surplus would he obtain with each provider? (Hint: Graph the demand curve and recall the formula for the area of a triangle.)

e. Which provider would you recommend that your friend choose? Why?

ANSWER

a. A=0 B=1
b. A=150min B=100
c. A=120 B=100
d. A=150x3/2-120=105 B=100x2/2=100
e. A, because it has a better cost ratio.

His surplus is a area between his demand (wich is straight) and the line of price(straight parallel to x)

So in A it is content of triangle [0;3] [0;0] [150;0] (noted as [x;y], x=number of minutes; y price) and you have subtract $120 fix charge

in B it is content of triangle [0;3] [0;1] [100;1]

3. QUESTION:

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 $2 and the government wants to reduce smoking by 20%, by how much should it increase the price?

ANSWER:

0.4 = 20%/x
.20/.4 = .50
x = 50%

$2 * 50% = $1 +2$ = $3

If the government wants to reduce smoking they would need to increase prices by 50%. In this case, from $2 to $3.

4. QUESTION:

In fall 2006, Pace University in New York raised its annual tuition from $24,751 to $29,454. Freshman enrollment declined from 1,469 in fall 2005 to 1,131 in fall 2006. Assume that the demand curve for places in the freshmen class at Pace did not shift between 2005 and 2006.

a. Use this information to calculate the price elasticity of demand. (Use the midpoint formula in your calculation and provide your response rounded to two decimal places.)
b. Is the demand for places in Pace's freshman class elastic or inelastic?
c. Did the total amount of tuition Pace received from its freshman class rise or fall in 2006 compared with 2005?

ANSWER:

a. Price Elasticity of Demand is (-338/1,300) * (27,102.5/4,703) = - 1.49
b. Elasticity of demand is > 1, therefore, is elastic.
c. Tuition fee in 2005 = $24,751 * $1469 = $36,359.219
Tuition fee in 2006 = $29,454 * $1131 = $33, 312, 474
Total revenue has declined by $3,046,745

5. Question: Use the following graph for Yolanda's Frozen Yogurt Stand to answer the questions.
a. Use the midpoint formula to calculate the price elasticity of demand for D1 between point A and point C and the price elasticity of demand for D2 between point A and point B. Which demand curve is more elastic, D1 or D2? Briefly explain.
b. Suppose Yolanda is initially selling 200 cones per day at a price of $3.00 per cone. If she cuts her price to $2.50 per cone and her demand curve is D1, what will be the change in her revenue? What will be the change in her revenue if her demand curve is D2?

ANSWER:

a. Avg demand = (200+300)/2 = 250;
Avg price = ($3 + $2.50)/ 2 = $2.75;
% change in quantity demanded = (300-200)/(250*100) = 41%;
% change in price = ($2.50-$3.00)/($2.75*$1.00) = -18.2%;
Price elasticity of demand for D1= (40%/-18.2%) = -2.2

Price elasticity of demand for D2 between A and B = (200+225)/2 = 212.5;
Avg price = $2.75
% in quantity in demanded = (225-200/212.5*100) = 11.8%;
% change in price = ($2.50-$3.00/$2.75*100) = -18.2%;
Price elasticity of demand for D2 = -0.65;

D1 is more elastic becuase percent of quantity demanded is higher in comparison to D2

b. Total revenue for demand for D1 at A = $600
Total revenue for D1 at C = $750
Increase in revenue for D1 = $150

Revenue increases as demand falls because 1 is elastic

Revenue for D2 at A = $600
Revenue for D2 at B = $562.50
Increase in Revenue for D2 = $37.50

Revenue decreases as price falls because D2 is inealistc.

6. QUESTION :
The slope of a linear curve is constant, but its elasticity is not. The demand schedule of gasoline in the table will be used to calculate the price elasticity of demand by the midpoint method.
a. Complete the 6 empty columns.

b. Draw the demand curve from the given demand schedule and label it as a panel (a) and specify the range of the points on the demand curve whether it is elastic, inelastic or unitelastic. (see page 4)
c. Plot the numbers in 'total revenue' column in the graph to draw the total revenue curve. (X=Quantity, Y=Total revenue) Label it as a panel (b) and draw panel (b) right below panel (a). Specify the range of the points on the Total revenue curve whether the revenue is increasing, decrease or not changing to relate it to the elasticity. (see page 4)
d. When demand is inelastic on particular portion of the demand curve, does total revenue increase or decrease as price falls? Why?

ANSWER: (See attached sheet);

a.
b.
c.
d.

7. QUESTION :
When lettuce prices doubled, from about $1.50 per head to about $3.00, the reaction of one consumer was quoted in a newspaper article:
"I will not buy [lettuce] when it's $3 a head," she said, adding that other green vegetables can fill in for lettuce. "If bread were $5 a loaf we'd still have to buy it. But lettuce is not that important in our family."
a. For this consumer's household, which product has the higher price elasticity of demand: bread or lettuce? Briefly explain.
b. Is the cross-price elasticity of demand between lettuce and other green vegetables positive or negative for this consumer? Briefly explain.

ANSWER:
a. Lettuce has the higher price elasticity for demand, because there are other substitutes available at a lower price, while bread does not have substitutes available, thus it can't be substituted, or maleable.

b. Positive for this person, because he is willing to switch to other green vegetables, so there are substitutes.