IVY TECH STATE COLLEGE
ECN 101 ECONOMICS FUNDAMENTALS
Fall 2006

Homework_02: Answer Key

Chapter_03

2. Explain why the demand for residential natural gas (gas used for heating, cooling, and cooking) is more elastic than the demand for residential electricity.

    Gas has more substitutes. If you don't want to heat with gas, you can switch to electricity or to heating oil. However, if you want to turn on your lights and the TV, your only real choice is electricity.

7. As the head of a state chapter of MADD (Mothers Against Drunk Driving), you are to speak in support of policies that discourage drunk driving. The number of highway deaths among young adults, which is roughly proportional to the group's beer consumption, is initially 100 per year. You have scheduled a news conference to express your support for a beer tax that will increase the price of beer by 10%. The price elasticity of demand for beer is 1.30. Complete the following statement: The beer tax will decrease the number of highway deaths among young adults by about ____ per year."

    If the price of beer rises by 1%, the quantity demanded falls by 1.3%. A 10% increase would thus result in a 13% decrease in quantity demanded, and thus, there would be 13% fewer deaths, 13 less per year.

Chapter_04

2. Consider a firm with the following short-run costs:

Quantity	Variable Cost	Total Cost
1	30	90
2	50	110
3	90	150
4	140	200
5	200	260

a. What is the firm's fixed cost?

   The firm's fixed cost is $60.

b. Compute short-run marginal cost, short-run average variable cost, and short-run average total cost for the different quantities of output.

Quantity	MC	AVC	ATC
1	30	30	90
2	20	25	55
3	40	30	50
4	50	35	50
5	60	40	52

c. Draw the three cost curves. Explain the relationship between the SMC curve and the SATC curve and the relationship between the SAVC curve and the SATC curve.

> **The SMC curve initially decreases and then increases. Thus both average cost curves initially decrease until they meet marginal cost, and then increase.**

4. Consider a firm that has a fixed cost of $60 per minute. Complete the following table.

Output	FC	TVC	STC	SMC	AFC	SAVC	SATC
1	**60**	10	**70**	**10**	**60**	**10**	**70**
2	**60**	18	**78**	**8**	**30**	**9**	**39**
3	**60**	30	**90**	**12**	**20**	**10**	**30**
4	**60**	45	**105**	**15**	**15**	**11.25**	**26.25**
5	**60**	65	**125**	**20**	**12**	**13**	**25**
6	**60**	70	**130**	**5**	**10**	**11.66**	**21.66**

7. You want to know the marginal cost of producing a Chevrolet Caprice. Critically appraise the following quote from an analyst in the production department. "The marginal cost of a Caprice, given our current volume, is $12,500. Of course, the actual marginal cost depends on the number of cars produced: the larger the number produced, the lower the unit cost because we will spread out our design and tooling costs over more cars."

This is wrong. This person is speaking about the average cost, not the marginal cost. The latter refers only to the *change* in cost, and thus has nothing to do with those fixed costs

9. Suppose one firm generates 30 billion kilowatt hours of electricity, which is about three times the output of a second electricity firm. Which firm will have a higher cost per kilowatt hour? Use the information in Figure 4.6 to predict the gap between the average costs of the two firms.

The larger firm will have much lower costs, as there are large economies of scale in electricity production. Based on Figure 8.6, the smaller firm's average cost is $0.40 higher