IN-CLASS ASSIGNMENT: Elasticity

Wednesday, January 28th, 2015

Name: ANSWER KEY

1. Calculate the demand curve given the following information:
   a. The price elasticity of gas, $\varepsilon_{Q_D,p}$, equals -0.2.
   b. 2 million gallons of gas are sold daily at a price of \$3.
   c. $\varepsilon_{Q_D,P} = \frac{\Delta Q_D}{\Delta P} * \frac{P}{Q_D}$.

   Note: It is easier to solve for the slope of the demand curve first, and then solve for the intercept.

$-0.2 = \text{slope}\,\frac{3}{2}$

$\text{Slope} = -.1333$

$2 = a - .1333(3)$

$a = 2.4$

$\boxed{Q_D = 2.4 - .1333P}$

2. Solve for the income elasticity of coke. Assume the demand for coke, Q_D^c, is given by the follow equation

$$Q_D^c = 174 - 5.48P_c + 1.4I$$

where
P_c = price per 10 cases of Coke
I = disposable income in U.S.

Let

$$P_c = 12.96$$
$$I = 20.63$$

$Q_D^c = 174 - 5.48(12.96) + 1.4(20.63) = 131.86$

$\varepsilon_{QP,I} = 1.4\left(\frac{20.63}{131.86}\right) = 0.22$

Remember:

$\varepsilon_{QD,I} = \frac{\%\Delta Q_D}{\%\Delta I} = \frac{\Delta Q_D}{\Delta I} \cdot \frac{I}{Q_D} = \text{slope} \cdot \frac{I}{Q_D}$