Homework #2

1.) Consider the market for a movie in two towns. For Amherst, $Q_D = 10 - P$ and $Q_s = P$. For Benton, $Q_D = 16 - 2 * P$ and $Q_s = 8 + 2 * P$.

a.) Assume initially that Amherst and Benton are close together but separated by a natural barrier that makes travel between those cities prohibitively expensive—at least, too costly merely to see a movie. Solve for equilibrium price and quantity in Amherst and Benton.

b.) Suppose now that a bridge or tunnel is built that makes travel between the cities completely costless. What is "the market" now? Solve for equilibrium price and quantity overall— and the quantity demanded and quantity supplied in each town.

c.) In general terms, what happens in the market for movies as the cost of travel between the cities increases or decreases?

2.) Using $Q_{Dx} = 80 - 4*P_X$, draw the demand curve by finding its two endpoints (P at $Q_D = 0$, and Q_D at $P = 0$). Then, choose two ***other*** points which are ***close*** together on the demand curve.

- a.) Plot the two points you have chosen on the demand curve.
- b.) Calculate E_D from <u>each</u> of the two points.
- c.) Calculate E_D using the midpoint ("arc elasticity") formula. (Hint: your answer using the midpoint formula should be about midway between your two answers for b!)
- d.) Determine whether the demand curve is elastic or inelastic over the range of your selection of points-- *using the "total expenditure/revenue approach"* (p. 220-221). Show your work.
- e.) Choose two other points on this demand curve and repeat all of the above.

3.) Let Y = \$210, P_1 = \$3, and P_2 = \$6.

- a.) Plot the two endpoints and one other point (with Q of X_1 on the horizontal axis and Q of X_2 on the vertical axis). Draw the budget constraint and calculate the slope of the budget constraint. Then, form the relevant equations—in terms of Y (Y = …) and then in terms of X_2 (X_2 = …). Comparing it to your graph, what does ***the latter*** equation show?
- b.) Let P_2 increase to \$7. Redo question 3a, drawing the original and new budget constraints.
- c.) Let P_2 return to \$6 and let Y increase to \$240. Redo question 3a, drawing the original and new budget constraints.