

Problem Set #2

[Because supply and demand are important concepts, we will try a second problem in this genre:]

1. The market for squash court time is presently in equilibrium, and its supply and demand schedules have the usual shape. Squash court time is a normal good. Tennis court time is a substitute for squash court time (only for some people, of course!). Squash court time and squash racquets are complementary goods. Squash court professionals are an input into the production of squash court time. You will find it useful to draw supply and demand diagrams to analyze the effect of each of the following individual events on the equilibrium price and quantity in the squash court time market (as usual, you will not be turning in these diagrams). Each case should be considered independently. In each case, you should indicate on your answer sheet what happens to the supply curve, to the demand curve, and to equilibrium price and quantity, using the following codes:

For both supply and demand, the codes are -

A -shifts to the right

B -shifts to the left

C -does not shift

D -may or may not shift, and direction is ambiguous

For both price and quantity, the codes are -

E -rises

F -falls

G -remains the same

H -may rise or fall

a) A study shows that playing squash offers a superior workout, and that recreational squash players have dramatically lower levels of heart problems when compared to other amateur athletes. Canadians become convinced that squash playing can make them all healthy.

b) Tennis court time rises in price.

c) Wages for squash professionals rise.

d) Squash racquet prices fall at the same time as wages for squash professionals rise.

e) Incomes rise at the same time as squash racquet prices rise.

f) Technological change makes it cheaper to produce squash court time. At the same time, wages for squash professionals rise.

Question 2.

A student has the following demand curve for long distance phone calls to a loved one in Moose Jaw each month given by the following equation: $P = 5 - Q/20 = 5 - 0.05Q$ where p is the price the student pays in dollars and Q is the amount of time, in minutes per month, that the student spends on the phone to Moose Jaw. Again, although you will not be turning in your diagram, it will probably help you to draw this demand curve. The following table will help you draw this graph:

P	0	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5
Q	100	90	80	70	60	50	40	30	20	10	0

- a) Now suppose that the cost per minute is \$0.50. How long will the student talk and what consumer surplus will be obtained? How much will the student pay each month for phone calls to Moose Jaw?
- b) Now suppose that the cost per minute is \$4.50. Again find how long the student will talk each month and how much the calls will cost each month. Also obtain consumer surplus each month.
- c) Now suppose that the phone company offers a special options which it advertises as the PHoToLO option ("phon~ home to loved ones" -I am not sure that this ad campaign would be a success): students can call any single number in The U.S. at any time each month and talk as long as they want for a flat monthly rate of \$46. You should be able to show that this student will purchase the PHoToLO option when the cost per minute is normally \$0.50 per minute (the situation in part a), even though the total cost each month under the PHoToLO option is more. What is the gain in that case in purchasing the option? What is the maximum cost of the option that this student would be willing to pay (the maximum cost before it becomes "bad deal")?
- d) You should notice that the student pays the same amount for phone calls in parts a and b. Is the student better off in a or in b?

3. The long run price in the bonbon business is \$50 independent of how many units are supplied. There are two possible demand curves, each generating long run equilibrium quantity of 100:

I. $P = 150 - Q$

II. $P = 75 - 0.25 Q$

It may help you to have the following tables for the two demand curves:

Demand Curve #1:

P	150	130	110	90	70	51	50	49	30	0
Q	0	20	40	60	80	99	100	101	120	150

Demand Curve # 2:

P	75	70	65	60	55	51	50	49	45	0
Q	0	20	40	60	80	96	100	104	120	300

a) A \$20 unit tax is placed on the sellers of bonbons. Because sellers will only supply bonbons when the price they receive is \$50, this raises the equilibrium price of bonbons to \$70 (you might want to think about why this is so). For each of the two cases, compute the revenue raised by the government via this tax, the excess burden, the ratio of excess burden to tax revenue, the cost to the taxpayers of each dollar raised by the government, and the elasticity of demand at $P=50$.

b) In each of the two cases, start at $p = 50$ and then first increase price to 51 and second decrease price to 49. Compute what happens to total revenue when you do that, and use your results to complete the following statements with one of the following three codes:

A- increase total revenue received by the sellers.

B -decrease total revenue received by the sellers.

C- leave total revenue received by the sellers approximately unchanged.

i) When demand is elastic, a rise in price (or fall in quantity) will _____

ii) When demand is inelastic, a rise in price (or fall in quantity) will _____

iii) When demand is elastic, a fall in price (or rise in quantity) will _____

iv) When demand is inelastic, a fall in price (or rise in quantity) will _____