CARLETON UNIVERSITY

Department of Economics
Economics 1000

Tutorial Assignment 1
GROUPS 1,3,5,7,9,11

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1. Carleton University has a theft problem. Bicycles and stereo equipment have been stolen from many campus locations. To reduce the extent of the problem, the campus police have hired 5 new officers. The table below gives the expected number of thefts for different ways of assigning the 5 new officers.

New officers assigned to bicycle duty	Reduction in bike thefts	New officers assigned to residence patrol	Reductions in theft of stereos
1	25	1	10
2	45	2	18
3	60	3	25
4	70	4	31
5	75	5	36

10 (a) Plot the production possibilities curve for theft reduction. Be sure to label axes carefully.

15 (b) Describe the opportunity costs involved in assigning the 5 new officers. Your opportunity cost answer should refer to points in the PPC diagram.

2. The demand curve for beer is

$$P=100-0.02Q$$ (P is in cents per bottle).

NOTE: In this equation, 100 means 100 cents and 0.02 means 0.02 cents.

10 (a) Draw the demand curve for beer.

5 (b) If P= 20 cents, compute quantity demanded and elasticity of demand at this price.

5 (c) If P= 50 cents, compute quantity demanded and elasticity of demand at this price.

5 (d) Compute arc elasticity for the segment of the demand curve between P= 20 cents and P= 50 cents.

3. The demand and supply schedules for bricks are shown in the table below.

DEMAND		SUPPLY	
Price	Quantity	Price	Quantity
$2.00	50,000	$2.00	200,000
$1.50	70,000	$1.50	160,000
$1.00	100,000	$1.00	100,000
$0.75	150,000	$0.75	50,000
$0.50	250,000	$0.50	0

5 (a) Find the equilibrium price and quantity.

5 (b) What would happen if the price was set at $1.50? Is there a surplus or shortage? What will happen to price? Why?

5 (c) If the price is $0.75, is this market in equilibrium? Is there a surplus or shortage? What will happen to price? Why?

5 (d) What is the elasticity of demand at P= $2.00?

5 (e) What is the elasticity of supply at P= $2.00?

4. In the market for audio cassettes, the demand and supply equations are:

Demand: Qd = 60-2P

Supply: Qs = 10+3P

5 (a) Plot the demand curve.

5 (b) Plot the supply curve.

5 (c) Solve algebraically for equilibrium price and quantity. Confirm that this answer is consistent with a diagram in which demand and supply are plotted together.

5 (d) Calculate the price elasticity of demand at the equilibrium price.

5 (e) Show in your diagram the result of a law prohibiting the sale of cassettes at prices above $5. What would be the impact of this legal price control?