Homework #3 Econ 200N Instructor: Holian Assigned 5/25/2007

1.

Dreher's Designer Shirt Company, a monopolist, has the following cost and revenue information.

COSTS			REVENUES			
Quantit Produced	**Total Cost ($)**	**Marginal Cost**	**Quantity Demanded**	**Price ($/unit)**	**Total Revenue**	**Marginal Revenue**
0	100	--	0	170		--
1	140		1	160		
2	184		2	150		
3	230		3	140		
4	280		4	130		
5	335		5	120		
6	395		6	110		
7	475		7	100		
8	565		8	90		

a.) What is the profit maximizing quantity?
b.) What is the profit maximizing price?
c.) How much profit does the monopoly earn at the profit maximizing price and quantity?

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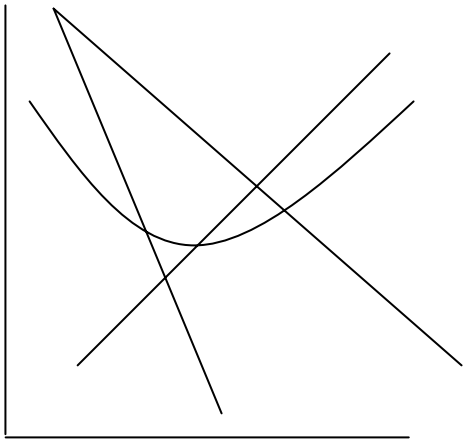
2. Label the four curves below, and indicate the values of the profit maximizing quantity and price, and the area indicating the amount of profit.



3.

Consider a small town that has two grocery stores from which residents can choose to buy a gallon of milk. The store owners each must make a decision to set a high milk price or a low milk price. The payoff table, showing profit per week, is provided below. The profit in each cell is shown as (Store 1, Store 2).

		Store 2	
		Low Price	*High Price*
Store 1	*Low Price*	(500, 500)	(800, 100)
	High Price	(100, 800)	(650, 650)

a.) Does Store 1 have a dominant strategy? If so, what is it?
b.) Does Store 2 have a dominant strategy? If so, what is it?
c.) Imagine the stores play this game one time. What is the Nash equilibrium?
d.) Explain how the Nash equilibrium in a repeated game could differ from the Nash equilibrium in a one-shot game. What are the precise mechanisms that lead to this difference?

4.

Recall the children's game Paper, Scissors, Rock. Children in many different cultures play variants of this game, but for those who may be unfamiliar, the basic structure is as follows: Opponents face each other with a closed right hand fist. Both opponents then chant the three words (paper, scissors, rock) together in rhythm moving their fists down each time. On the third time, the opponents suddenly open their hands into one of three signs: paper (hold out all five fingers), scissors (hold out the second and third fingers, close the thumb over the last two fingers), rock (keep your hand closed in a fist. Do not open it.

This is how to determine points: PAPER wins over ROCK because it can wrap around the stone. ROCK wins over SCISSORS because it can break the scissors. And SCISSORS wins over PAPER because it can cut paper. If both players make the same sign, its a tie. In a tie, both players get zero points; otherwise, the winner gets one point and the loser gets zero points.

Fill in the payoffs below in the Paper, Scissors, Rock game

		Bridget		
		Paper	*Scissors*	*Rock*
Matt	*Paper*			
	Scissors			
	Rock			

5.

		B		
		Left	*Center*	*Right*
A	*Up*	(4, 2)	(2, 5)	(3, 3)
	Middle	(3, 1)	(5, 3)	(5, 2)
	Down	(1, 3)	(4, 4)	(6, 1)

a.) How many Nash equilibriums are there in this game, and where is it/are they?

6.

		B		
		Left	*Center*	*Right*
A	*Up*	(4, 2)	(2, 5)	(3, 3)
	Middle	(3, 1)	(5, 3)	(5, 2)
	Down	(1, 3)	(4, 2)	(6, 3)

a.) How many Nash equilibriums are there in this game, and where is it/are they?

7.) Consider Hotelling's Beach Model

- many, many people buy ice cream and are uniformly (evenly) distributed on a beach that is one mile long (that is to say they are scattered randomly across the beach.)
- there are two ice cream vendors that *must* charge $1 for an ice cream cone. They sell the same product, so the only way they can compete is by strategically locating their carts.
- people buy ice cream from whichever vendor is closer.

a.) Where on the beach below will the two venders locate their carts in Nash equilibrium?

0 .25 .5 .75 1 mile

*** extra credit: can you find a Nash equilibrium to this game with *four* vendors?