

FIRST MIDTERM EXAM

Economics 401 Fall 2008, David K. Levine

Do all three questions, each has equal weight. You have 1 hour and 23 minutes.

1. Suppose that there are two good, the quantities of which are denoted by x, y , and a consumer with utility given by $x^{.425}y^{.425}$. The consumer has income I and the prices are p, q .

- Write the budget constraint of the consumer.
- Find the demand of the consumer for x as a function of p, q, I .

Suppose that there is a firm that produces the good x at constant marginal cost c .

- Find the competitive equilibrium output and price in the market for x .
- What happens to the revenue of a monopolist as it changes price in the market for good x ? In light of what happens with revenue, explain in general terms what the monopolist should do.

2. For each of the following simultaneous move matrix games, find (a) the dominant strategy equilibrium (if any), (b) apply iterated strict dominance to reduce the size of the game, (c) find the reaction functions of the two players (in the original game, not the reduced game), (d) and find as many Nash equilibria as you can. (e) Is there any Nash equilibrium that is Pareto efficient?

a.

	L	C	R
U	4.0, 4.0	5.4, 3.6	1.2, 0.0
M	3.6, 5.4	5.0, 5.0	-4.0, 10.0
D	0.0, 1.2	10.0, -4.0	1.0, 1.0

b.

	L	C	R
U	4.00, 4.00	4.8, 4.20	0.80, 0.40
M	4.20, 4.80	5.00, 5.00	0.67, 5.33
D	0.40, 0.80	5.33, 0.67	1.00, 1.00

3. Suppose that demand for a quantity x in a market is given by price $p = 17 - x$ and that there are two firms. One firm has a high marginal cost of 3 and one has a low marginal cost of 1. Find the Cournot (same meaning as Nash) equilibrium in which both firms choose quantities.