

## Problem Set 2

***N.B.: To be handed in on March 25<sup>th</sup> at the beginning of the course  
(in class or by e-mail)***

### Exercise 1 – Monopoly

In a monopoly situation, the unit total cost of the monopolist is given by:

$$UTC(Q) = 0,85Q - 0,83$$

The demand function of the market is given by:

$$Q = 2,34/1,34 - P/1,34$$

- (i) Find the produced quantity and the price at the equilibrium as well as the profit.
- (ii) Find the price elasticity of demand at the equilibrium.
- (iii) What would be the market price if we were in a situation of perfect competition?
- (iv) Calculate the impact on the consumers' surplus when moving from monopoly to perfect competition?

### Exercise 2 – Discriminating monopoly

Given that a market is in a monopoly situation, the total cost function of the monopolist is given by:

$$TC(Q) = Q^3 - 6Q^2 + 15Q$$

We know that the units produced are sold on two markets (1 and 2). The demand functions on the two markets are:

$$Q_1 = -P_1/8 + 4$$

$$Q_2 = -P_2/10 + 2$$

- (i) Find the optimal quantities and the prices fixed on the two markets as well as the profit of the monopolist.
- (ii) Check if the price difference reflects the price elasticities of demand. Comment.