Problem Set 2

N.B.: To be handed in on April 3rd at the beginning of the course (in class or by e-mail to: eibm-mgt403@epfl.ch)

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:

\[ Q = \frac{2.34}{1.34} - \frac{P}{1.34} \]

(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) Show graphically this monopoly situation.
(iv) What would be the market price if we were in a situation of perfect competition?
(v) 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:

\[ Q_1 = -\frac{P_1}{8} + 4 \]
\[ Q_2 = -\frac{P_2}{10} + 2 \]

(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.