ECO 101A: Tutorial # 8

Date: 28/03/2017

1. A monopolist is deciding how to allocate output between two geographically separated markets (East Coast and West Coast in US). Demand curves for the two markets are: $P_1 = 15 - Q_1$ and $P_2 = 25 - 2Q_2$. The monopolist's total cost is $C = 5 + 3(Q_1 + Q_2)$.
   a) Derive the marginal revenue functions.
   b) What are price, output, profits, marginal revenues if the monopolist can price discriminate?
   c) What are price, output, profits, marginal revenues if the law prohibits charging different prices in the two regions?

2. Consider a monopoly that faces the demand curve $P = 100 - 3Q + 4A^{½}$ and has the total cost function $C = 4Q^2 + 10Q + A$ where A is the level of advertising expenditures, and P and Q are price and output.
   a) Find the values of A, Q, and P that maximize the firm's profit.
   b) Calculate the degree of monopoly power for this firm at its profit-maximizing levels of A, Q, and P.

3. A firm faces the following demand curve: $P = 120 - 0.02Q$ where Q is weekly production and P is price, measured in cents per unit. The firm's cost function is given by $C = 60Q + 25{,}000$.
   a) What is the level of production, price, and total profit per week?
   b) Calculate deadweight loss due to monopoly.
   c) If the government decides to levy a tax of 14 cents per unit on this product, what will be the new level of production, price, and profit?
   d) How will deadweight loss change after this government intervention?