Homework #4

1. The graph below depicts the demand curve and cost curves of a monopolist.

   ![Monopoly Graph]

   a) Draw the marginal revenue curve. What is the marginal revenue associated with the 40th unit of output? Explain. **Marginal revenue is less than the price the monopolist charges because in order to sell one more, the monopolist must lower the price and thus receives less from other customers. The marginal revenue curve crosses the X axis at half the point where demand crosses. The marginal revenue of the 40th unit is $35, which means if the monopolist sells 40 he/she will receive $35 more than if he/she sold 39 units.**

   b) What output would a monopolist produce at? **Where MR = MC which is a quantity of 60.**

   c) What price would a monopolist charge? **Go to demand to see what people are willing to pay, in this case $45.**

   d) What would be the monopolist’s profits? **Profits equal (P – ATC) * Q = ($45 - $25)*60 = $1,200.**

   e) Would the monopolist’s level of output be efficient (would there be deadweight loss)? If not, what level of output would be efficient? **Explain. No. The monopolist sells 60, but the 60th one is worth $45 to someone (we know this because the demand curve shows someone is willing to pay $45) but the marginal cost of making it is only $15. Since MB > MC, we need to have more be produced in order to be resource allocative efficient. The efficient quantity, where MB = MC, is 95, where MC crosses the demand curve.**
2. The following graph is for a firm in an industry characterized by Monopolistic Competition.

![Graph of Monopolistic Competition](image)

a) What are the assumptions that characterize this market (what makes it monopolistic competition)? Many buyers and sellers, easy entry and exit, and differentiated product.

b) Draw the firm’s marginal revenue curve. Like for a monopoly, since demand is downward sloping, we draw in the marginal revenue curve as shown above.

c) What quantity and price would the firm produce at in short run equilibrium? Quantity where MR = MC, which is about 250. The price is from the demand curve, about $100.

d) What would we expect to happen to the firm’s demand curve over time? Why? Since this firm is earning profits (price is $100 but ATC is only $70), new firms will enter. This will shift the firms demand curve in since at any given price, people will be willing to purchase less from this firm.

e) Will the firm in a market of monopolistic competition be efficient? No, the firm produces where MR = MC but this is not where the value of the last good (MB) equals the cost of making it (MC). At a quantity of 250, the last one is worth $100 to someone and costs less than $50 to make it – to be efficient we need to produce more (the efficient quantity is 450).

f) What is meant by excess capacity and is it something we should be concerned about? This means that the firm is not the size that allows it to produce its product at the lowest ATC. In this case, we would be able to produce the product at lower ATC if we had fewer firms that each sold more. While this used to be more of a concern to economists, many now believe the extra choices available from having more firms may offset the fact that each firm has excess capacity.
3. The graph below show the market demand curve and marginal cost for an oligopoly that has two identical firms.

![Graph showing demand and marginal cost for an oligopoly]

a) What are the assumptions that characterize this market (what makes it oligopoly)?
   **just a few firms, either differentiated or homogenous product, barriers to entry**

b) Draw the combined marginal revenue curve for both firms. Draw the marginal revenue curve for one of the firms.
   **Omit**

c) What quantity and price would the firm produce at in short run equilibrium?
   **Omit**

d) Compare this price and quantity to what we would have if there were a monopoly and to what we would have if there were perfect competition (many firms, each with constant marginal cost of $1).
   **Omit**

e) Describe how the prisoners dilemma relates to an oligopoly market structure.
   **In both the prisoner’s dilemma and the oligopoly market structure, if both parties worked together they could be better off. However, each party has an incentive to “cheat” and not go along with the cooperative agreement. The ultimate result is that profits are lower than they would have been if the parties had acted cooperatively and worked together.**
4. Answer the following true or false and explain why.

a) The market is always efficient when firms sell the quantity where marginal revenue equals marginal cost. **False.** The firm maximizes profits where MR = MC, but this is not necessarily the efficient outcome. In order to be efficient, we have to be where marginal benefit = marginal cost to society. For firms other than perfect competition, when the firm maximizes profit, we still have deadweight loss (inefficiency).

b) If a monopoly is not being efficient, then it is not maximizing profits and has made a mistake. **False.** Similar to question a, a monopoly maximizes profit where marginal revenue = marginal cost. However, since marginal revenue is lower than the price the monopoly charges, this quantity will be where marginal benefit > marginal cost, a quantity lower than the efficient quantity. In fact, if a monopoly IS being efficient (where marginal benefit = marginal cost) then we know they are not maximizing profit.

c) When there is more competition, we expect to see lower prices, a higher quantity, and bigger profits than for the other market structures. **False.** We do expect to see lower prices and higher quantity, but the profits are smaller than other market structures. This is because firms come in and compete, driving down profits.

d) The market will give us an economic efficient outcome without any government intervention only if the industry is characterized by perfect competition. **True.** To be efficient, we have to be where marginal benefit = marginal cost. We can find marginal benefit from price (how much people are willing to pay), so this is the same as saying where price = marginal cost. However, the only market structure that will produce where price = marginal cost is perfect competition since for perfect competition price is the same thing as marginal revenue. When the firm in perfect competition sets marginal revenue = marginal cost, they are ending up where price = marginal cost.

e) Firms earning a positive profit will continue to earn positive profits in the long run as long as there are barriers to entry. **True.** With barriers to entry, new firms can’t enter the market and drive down price or profits.

f) Excess Capacity implies we could be producing at a lower ATC in monopolistic competition if we had fewer firms each producing a higher quantity. **True.** Excess capacity means the firm is selling a quantity lower than the quantity that minimizes average total cost. If firms produced a higher quantity, the average cost would be lower. In other words, if we had fewer firms each producing a higher quantity, we would have a lower ATC.