

Some Monopoly Problems with Solutions

1. Assume a monopolist faces a market demand curve $P = 100 - 2Q$, and has the short-run total cost function $C = 640 + 20Q$.
 - a. What is the profit-maximizing level of output? **Q = 20**
 - b. What are profits? **160**
 - c. Graph the marginal revenue, marginal cost, and demand curves, and show the area that represents deadweight loss on the graph. **See diagram in notes**
2. In Question 1, what would price and output be if the firm priced at socially efficient (competitive) levels? What is the magnitude of the deadweight loss caused by monopoly pricing?

Q = 40 and P = 20 See diagram in notes

3. You are the manager of a monopolistically competitive firm, and your demand and cost functions are given by $Q = 20 - 2P$ and $C(Q) = 104 - 14Q + Q^2$
 - a. Determine the profit maximizing price and level of production? **P = 6**
Q = 8
 - b. Calculate your firm's maximum profits? **-8**
4. Suppose a monopolist has constant marginal cost at $MC=2$ and she is facing the demand curve $P=20 - Q$.
 - a. Compute the level of production that maximizes the monopolist's profits.
Q = 9
 - b. Calculate the price at this level of output. **P = 11**
 - c. On a graph with P on the y-axis and Q on the x-axis, draw the demand curve, marginal revenue curve and the marginal cost. Label the equilibrium price and quantity that you have computed in part a.
 - d. On the graph, mark the area that is the producer surplus.
 - e. On the graph, mark the area that is the consumer surplus. **See example in notes**