

1. (5 points) Briefly explain why a competitive firm perceives the market price to be its marginal revenue while a monopolist does not. Conclude with the efficiency implications of this difference.

2. (5 points) You and two friends (inexplicably) go to see the movie *The Comebacks*, the latest movie to think that being funny just requires lazy writing while stoned. Halfway through, all of you agree that it stinks, but your two friends are arguing about whether to leave early. One says that, since you aren't going to get a refund for your ticket, you should stick it out to the end or that money will be wasted. The other says you should cut your losses and leave immediately. With which friend do you (in your role of mini-economist) agree, and why?

3. (15 points) Microsoft hires you as a consultant to help them set the best single price for their latest operating system *Vista-Plus*. You've been given good information about the projected demand (amazingly enough, it's downward-sloping and linear) and the company's costs of production (which are as you'd expect ... U-shaped ATC and increasing MC). After your analysis is complete, three B-school-trained managers confront you with their own ideas about the best way to maximize Microsoft's immediate profits. For each of the following, demonstrate graphically what the manager is thinking and explain the flaw of each one in a sentence or two. (You can show all three strategies on a single graph.)

- A. The first manager wants to maximize per-unit profit, i.e., pick the price that makes the difference between P and ATC as large as possible.
- B. The second manager says that, so long as $P > MC$, Microsoft is losing the chance to profitably sell to some customers. Therefore, the price that maximizes profits is the one that sets $P = MC$.
- C. The third manager wants to produce and market the system as cheaply as possible, i.e., pick a price that makes ATC as small as possible.

4. (10 points) Suppose that you are a monopolist facing the following (inverse) non-linear demand curve:

$P = 45 - 3Q^D - (Q^D)^2$. Without calculating an algebraic expression for marginal revenue ($MR = \Delta TR / \Delta Q$), answer the following.

- A. What is the MR associated with moving from $Q^D = 1$ to $Q^D = 2$?
- B. What is the MR associated with moving from $Q^D = 2$ to $Q^D = 3$?
- C. What is the MR associated with moving from $Q^D = 3$ to $Q^D = 4$?

5. (20 points) Schering-Plough (the makers of Claritin) spent \$80 million (this is a horrible, low-ball guess, by the way) to develop and test the drug. Now that it's perfected, though, its marginal costs are constant at \$0.60 a pill. If the drug were free, 120 million doses would be demanded every year, but quantity demanded falls by 4 million doses as the price increases in 10 cent intervals (i.e., $Q^D = 120 - 40P$, quantities in Ms, prices in \$).

- A. At what price and quantity are Schering-Plough's profits maximized? (The numbers aren't as clean as normal, so don't get too concerned by decimal points.) What are annual profits? How many years will it take for Claritin profits to exceed development costs?
- B. What is the deadweight loss to society of the patent that prevents generic drugs from entering the market? (Assume that the generics are chemically identical to Claritin.)