

# Chapter 17 Practice Problems

Elements of Microeconomics (discussion section 4)

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## Question 1

In Baltimore there are two main internet providers, Xfinity and Verizon. Suppose the marginal cost of supplying internet is constant at \$20 per customer, and the demand for internet service is described by the following demand schedule:

Price	Quantity
\$200	5,000 customers
\$180	6,000
\$160	7,000
\$140	8,000
\$120	9,000
\$100	10,000
\$80	11,000
\$60	12,000

- (a) If there were many suppliers of internet service in Baltimore, what kind of market would this be? What would be the price and quantity?
- (b) If there were only one supplier of internet service, what kind of market would this be? What would the price and quantity?
- (c) If Xfinity and Verizon form a cartel, what would be the price and quantity?
  - (i) If Xfinity and Verizon split the market evenly in this case, what would be Verizon's production and profit?
  - (ii) What would happen to Verizon's profit if it increased its production by 1,000 while Xfinity stuck with the cartel agreement?
- (d) Why are cartel agreements often unsuccessful?

## Question 2

Sandy's Brew is a small coffee company that is considering entering the local coffee market which is dominated by Common Ground Coffee. Each company's profit depends on whether Sandy's Brew enters the market and whether Common Ground Coffee sets a high price or a low price:

		Common Ground Coffee	
		High Price	Low Price
Sandy's Brew	Enter	(\$500, \$750)	(-\$250, \$250)
	Don't Enter	(\$0, \$1600)	(\$0, \$500)

Where the row player earns the first value in the parentheses in each situation, and the column player earns the second value in the parentheses in each situation.

- Does either player have a dominant strategy?
- What is a Nash equilibrium?
- Is there a Nash equilibrium in this game? If so what is it?
  - How does your answer to (a) help you determine the Nash equilibrium
- Common Ground Coffee threatens to set a low price if Sandy's Brew enters the market. Is this a credible threat? Why or why not?

## Question 3

Consider the market for cigarettes, which has a demand and supply curve given by:

$$Q_D = 75 - 3P$$

$$Q_S = 5 + P$$

- What is the equilibrium price and quantity in this market?
- Cigarettes have a negative externality on bystanders due to second hand smoke, causing the socially optimal quantity of cigarettes to be less than the equilibrium quantity in this market. Through what intervention can the government bring the market equilibrium closer to the socially optimal level?
- If the socially optimal quantity of cigarettes is 20, a tax of what amount per pack of cigarettes must be levied by the government to bring the market equilibrium to equal the the socially optimal quantity.