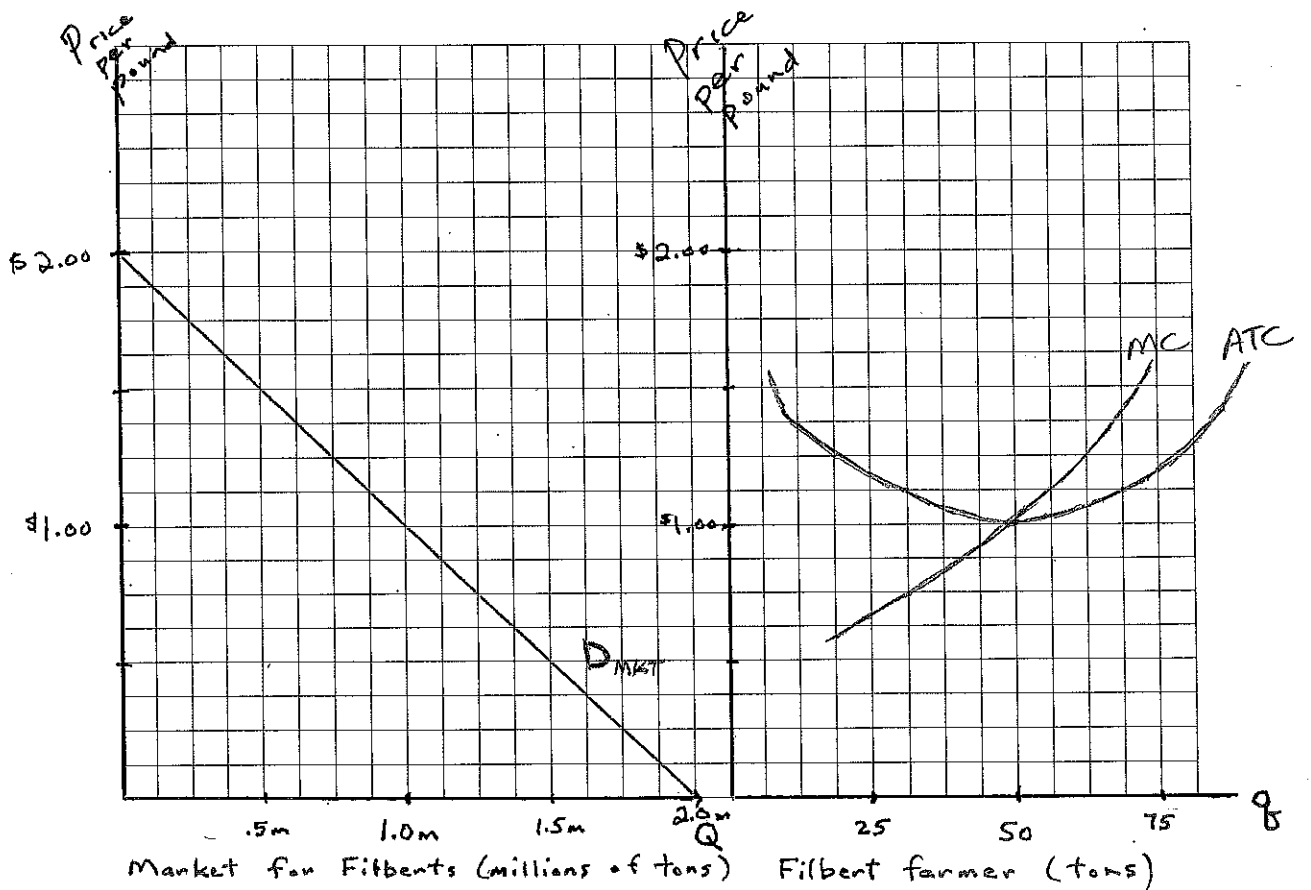


100 points total. Answer each question in the space provided.

1. (25 pts.) Filberts or Hazelnuts are a type of nut that is grown in the Mediterranean region, including Greece, as well as Oregon in the U.S. They are typically grown on small and medium-sized farms, and are consumed all over the world. A typical grower produces 50 tons per year. Last year approximately 1 million tons were produced, and the market price was roughly \$1.00 per pound. Assume that the industry was in long-run equilibrium at that price and output.

- a) Market demand for filberts and the cost curves for a typical farmer are shown in the diagram below. Illustrate the situation described above, and label the outcomes for the market and for the firm with (a). Briefly explain.

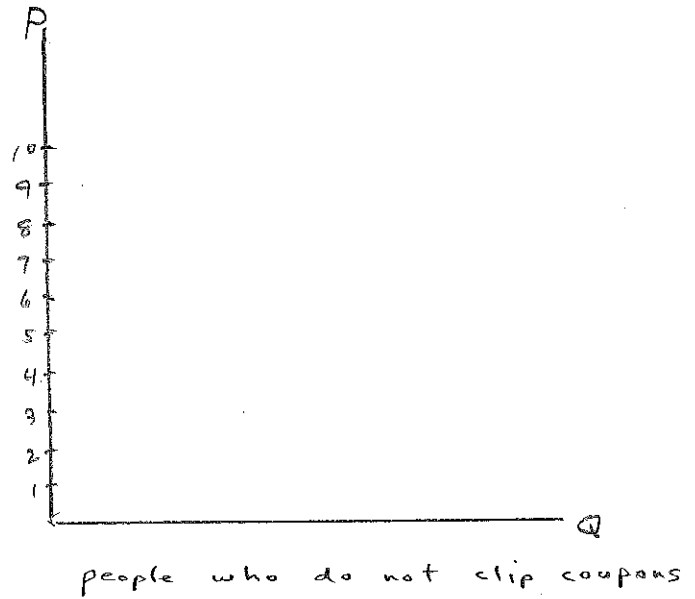
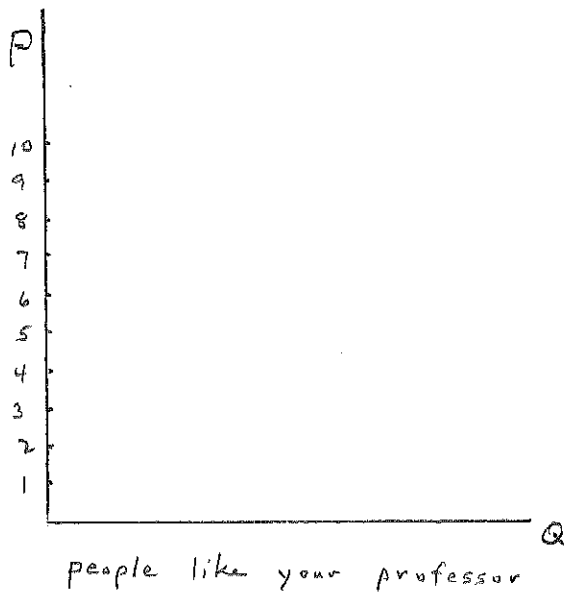


- b) Suppose that the filbert growers ask your consulting firm to put together a proposal for all of them to consider at the annual filbert growers' association meeting. They have seen the success of other international cartels, and know that if they can collectively reduce industry output, the price of filberts will rise above that illustrated in your diagram above. They want you to determine what they should target for market output and price in order to maximize industry profits. Illustrate your analysis in the market diagram above and label (b). Briefly explain your reasoning below.
- c) Some of the filbert growers are reluctant to cut their individual outputs in order to achieve the desired reduction in market output. Explain to them why they would benefit from a successful cartel. Use the firm diagram to illustrate your answer, and label it (c).
- d) One of the filbert growers sitting in the audience is having the following thought: "This is great. Everyone else seems to be on board with this cartel. But it will be very difficult for anyone to monitor how many filberts I produce and sell." How many filberts will this "cheater" want to produce, and what will her profits be? Illustrate in your diagram and label (d). Briefly explain.
- e) Knowing what you do about the stability of cartels that lack strong enforcement mechanisms, what do you think will occur in the minds of other filbert growers as time passes? What is the long-run expected market output and price of filberts? How many filberts will each farmer produce and sell? Briefly explain, referring to your diagram.

2. (15 pts.) Suppose that the diamond industry consists of only two producers, Russia and DeBeers. Russia has two possible strategies: produce either 2 million or 4 million carats per year, and DeBeers has two possible strategies: produce either 8 million or 10 million carats per year. Depending on the strategies chosen by Russia and DeBeers, total output in the world market will be 10, 12, or 14 million carats, resulting in a world price of diamonds that is \$1200, \$900, or \$600 per carat, respectively, depending on the combined output of Russia and DeBeers. Production costs are \$400 per carat for Russia and \$200 per carat for DeBeers. Determine the profit payoffs of Russia and DeBeers for each combination of possible strategies, and then illustrate these payoffs in a 2x2 matrix. What do you predict will be the outcome of this game?

3. (10 pts.) In the above game between Russia and DeBeers, suppose DeBeers is able to commit to an output choice first, leaving Russia to choose its output given the strategy chosen by DeBeers. Should DeBeers choose to play a sequential move game instead of a simultaneous move game if it has that option? Explain your answer with a game tree.

4. (20 pts.) Your professor is able to purchase his favorite skin moisturizer, Curel Hydra Therapy Wet, for \$5. Other customers who do not spend their Sunday afternoons leisurely reading the Lexington Herald-Leader find themselves paying \$8 for the same product.
- a) Can you explain what is going on here, using words and diagrams? Assume that the manufacturer's marginal costs of production and distribution are constant at approximately \$3 per bottle.



- b) Who has the more elastic demand for Curel Hydra Therapy Wet, your professor or the other customers who didn't clip the coupon? Assuming that the manufacturer is maximizing profits, calculate the elasticity of demand for each group, using the inverse elasticity pricing rule. Show your work.

- c) What kind of price discrimination is this?

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5. (5 pts.) Explain why cruise ship companies like Princess and Royal Caribbean sometimes find themselves offering Mediterranean cruises at prices that are below average total cost, as occurred in January 2003.

6. (5 pts.) What are some of the tactics that Frontier Airlines uses that "allow" it to fly in the friendly skies of its much larger rival United Airlines?

7. (5 pts.) What market is Bombardier trying to enter, who are its rivals in that market, and how did they respond to the threat of entry?

8. (5 pts.) Briefly explain the antagonists and the nature of the interaction in the WSJ article "Haven't Shareholders Had Enough Chicken?"

9. (10 pts.) Your sister is the mayor of Napflio, Greece. She awards you the monopoly franchise rights to provide cable TV services to citizens of Napflio. As such, you are the only provider and as long as you have no competition, the discounted present value of your economic profit stream is 20,000,000€. Trouble looms on the horizon, however, because a satellite TV company is considering entering your market. Your monopoly franchise rights only apply to hard-wired cable TV, and do not apply to satellite signals and rooftop satellite dishes. If entry occurs and you share the market with a competitor, your discounted present value of economic profits will fall to 9,000,000€. If you contest entry and fight a price "war," the discounted present value of economic profits is -2,000,000€.

You announce publicly that if entry occurs, you will fight. In preparation to fight a price war, you add capacity to your system which enables you to offer additional channels that your competitor could not. The cost of adding such capacity in preparation to fight for customers is 10,000,000€. Only if entry occurs would you find it necessary to utilize this capacity. (a) Is your threat to fight a price war credible? Why or why not? (b) Is the decision to make such a commitment to deter entry a good one? Explain why or why not. You should draw the decision tree for this sequential-move game and refer to it in your explanation.