Chapter 15: Review

Readings Chapter 15: all

Outline
I. What is a Monopoly?
   A. Unique product issues defining this
   B. Protected by barriers to entry issues defining this
II. Economic Profits and Barriers to Entry
III. Market Power, MR, and Price
   A. MR and TR for a firm with market power
   B. How much does a monopolist, or any firm with market power, produce and what price does it charge? BRIE II & BRIE III
   C. Social Ramifications of Monopoly (& market power in general) as compared to a price taker
IV. Price Discrimination … although only a question or two regarding this is on the exam

Questions from the Text

Questions for Review (from the text)

Problems and Applications (from the text)
   1, 2, 4, 5, 6(c & d are harder than what we will see on an exam), 9, 12

Other Problems
1. A firm in a perfectly competitive industry is selling 100 units for $20 (i.e. Price = $20). What is the marginal revenue of the 100th unit? (You can use =, <, or > in your answer if needed.)_____________________

2. A monopolist is selling 1,000 units for $20 (i.e. Price = $20). What is the marginal revenue of the 1,000th unit? (You can use =, <, or > in your answer if needed.)_____________________

3. You and a friend see a man whose business is to wash windows of restaurants, retail stores, and other businesses. Your friend makes the following statement; “I bet those window washers make a lot of money. After all, you wouldn’t have that much to pay in the way of equipment and other costs.”

   Based on what you learned in this class, how profitable do you think this business would be? Explain your reasoning.
4. Monica and Ken own a catering business. They have estimated how much they can sell at each price as shown in the table below.

<table>
<thead>
<tr>
<th>Price (per catered meal)</th>
<th># of catered meals sold</th>
<th>Total Revenue</th>
<th>Marginal Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>$500</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$450</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$400</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$350</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$300</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$250</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$200</td>
<td>6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a) Is this business perfectly competitive? How can you tell?

b) Fill in the blanks for Total Revenue and Marginal Revenue.

c) Assume the marginal cost of catering a meal is $245. How many meals should this firm provide in order to maximize profits? __________

d) Now assume that Monica and Ken, due to a bout of temporary insanity, behave as if they were a price taker. How many meals would their firm produce if it takes prices as given? ___
5. Answer the questions based on the cost and revenue curves below.

a) Is the firm a perfectly competitive firm? How can you tell?
b) How much should the firm produce if it wants to maximize profits (or minimize losses)?
c) What price should the firm charge if it wants to maximize profits (or minimize losses)?
d) At the above price and quantity, is the firm making economic profits? How can you tell?
e) Should the firm operate or shut-down in the short-run?
f) If this is a typical day, should the firm stay in the industry or exit in the long-run?
g) What is the socially optimum Price and Quantity?
h) Indicate the deadweight loss to society resulting from this firm’s market power.
6. Answer the questions based on the cost and revenue curves below.

Q/day

a) Is the firm a perfectly competitive firm? How can you tell?
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c) What price should the firm charge if it wants to maximize profits (or minimize losses)?
d) At the above price and quantity, is the firm making economic profits? How can you tell?
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g) What is the socially optimum Price and Quantity?
h) Indicate the deadweight loss to society resulting from this firm’s market power.

7. Decelle owns a factory in Thailand which makes men’s shirts. She has the following data on costs and revenues for her factory: (Assume that costs include all opportunity costs)

<table>
<thead>
<tr>
<th>output/day</th>
<th>Price=MR</th>
<th>AFC</th>
<th>AVC</th>
<th>ATC</th>
<th>MC</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,000 shirts</td>
<td>$6.00</td>
<td>$3.00</td>
<td>$4.75</td>
<td>$7.50</td>
<td>$5.50</td>
</tr>
<tr>
<td>1,500 shirts</td>
<td>$6.00</td>
<td>$2.00</td>
<td>$5.00</td>
<td>$7.00</td>
<td>$6.00</td>
</tr>
<tr>
<td>2,000 shirts</td>
<td>$6.00</td>
<td>$1.50</td>
<td>$5.38</td>
<td>$6.88</td>
<td>$6.50</td>
</tr>
<tr>
<td>2,500 shirts</td>
<td>$6.00</td>
<td>$1.20</td>
<td>$5.80</td>
<td>$6.90</td>
<td>$7.00</td>
</tr>
</tbody>
</table>
a. How many shirts per day should this firm produce if it produces? ____________ shirts
b. Should this firm operate or shut down in the short-run? ________________ (operate, shut down)

8. ______ (contd from # 7.) If the industry producing men’s shirts is competitive and Decelle’s firm (and its profits or losses) are typical of the industry, which of the following would you expect to happen?
a. Firms exit, industry supply is reduced, price and profits rise for the remaining firms.
b. New firms enter, supply is increase, prices and profits fall.
c. Profit levels are maintained due to barriers to entry and exit in the industry.
d. Firms would expand plant size to take advantage of diseconomies of scale.

9. a. In the absence of market failures, what represents the value of another unit of a particular good to someone in society? ________ (MC, TC, AVC, TR, Price, MR) In other words, how much does society benefit when another unit is produced?
b. In the absence of market failures, what represents the cost to someone in society of another unit of a particular good? ________ (MC, TC, AVC, TR, Price, MR)
c. Assume there are no market failures. Fill in the blanks below with what should be done to increase the net benefits to society. Use: increase output, decrease output, or stay at current output.

<table>
<thead>
<tr>
<th>Condition</th>
<th>How to increase net benefits to society</th>
</tr>
</thead>
<tbody>
<tr>
<td>P &gt; MC</td>
<td></td>
</tr>
<tr>
<td>P = MC</td>
<td></td>
</tr>
<tr>
<td>P &lt; MC</td>
<td></td>
</tr>
</tbody>
</table>

d. Which industry type(s) chooses a price and quantity that (in the absence of market failures) maximizes society’s net benefits?

10. While out shopping for CD’s, Jeff notices an interesting phenomena: Music written by living artists is a lot more expensive than that composed by dead artists. For example, Pearl Jam is a lot more expensive than Beethoven. What might explain this? Hint, many copyrights expire when a person dies.

11. You own a tourist hotel chain in Jamaica. Currently you are charging every customer $35 per night. A company reveals that your customers fall into two categories: 1) those from the U.S. and Canada, and 2) those from Europe. The North American group’s E_D is 1.1. The European’s group’s E_D is 0.9. What can your company do to increase total revenues?
a. Raise the prices you charge both groups.
b. Lower the prices you charge both groups.
c. Leave the price unchanged.
d. Raise the prices you charge Europeans & offer North Americans a discount (i.e. a lower price).
e. Raise the prices you charge North Americans and offer Europeans a discount (i.e. a lower price).
12. You’ve realized your dream. You own a restaurant in on Berry Street. While profitable, your dream has also left you with a dilemma; how to make it even more profitable. Your customers fall into two broad groups. Business customers and students. On the one hand, you’d love to raise your prices because most business customers would pay the higher prices. You’d lose very few business customer sales. However, you also make some money (although a bit less) off of students. If you raise your prices you are afraid you would lose almost all of your student customers. What can you do to increase your profits? What is necessary for you to implement such a plan?

13. Describe a real world example of price discrimination.
- Why does it meet the definition of price discrimination?
- How do the sellers segment their buyers?
- How do sellers prevent re-sale of their product?
- Who gains from this price discrimination?
- Who loses from this price discrimination?

Answers to Other Problems

1. $20 = P = MR = $20
2. $20 = P > MR, therefore MR < $20

3. It sounds like the barriers to entry into this industry are pretty low. This would mean that the typical firm in the long-run, would earn zero economic profits. You would have to elaborate on why low barriers to entry mean low economic profits. You would also have to explain if this meant those in the industry don’t make any money. i.e. Explain the difference between zero $ profits and zero economic profits.

4.

<table>
<thead>
<tr>
<th>Price</th>
<th>Q</th>
<th>TR</th>
<th>MR</th>
</tr>
</thead>
<tbody>
<tr>
<td>$500</td>
<td>0</td>
<td>$0</td>
<td>$450</td>
</tr>
<tr>
<td>$450</td>
<td>1</td>
<td>$450</td>
<td>$350</td>
</tr>
<tr>
<td>$400</td>
<td>2</td>
<td>$800</td>
<td>$250</td>
</tr>
<tr>
<td>$350</td>
<td>3</td>
<td>$1050</td>
<td>$150</td>
</tr>
<tr>
<td>$300</td>
<td>4</td>
<td>$1200</td>
<td>$50</td>
</tr>
<tr>
<td>$250</td>
<td>5</td>
<td>$1250</td>
<td>- $50</td>
</tr>
<tr>
<td>$200</td>
<td>6</td>
<td>$1200</td>
<td></td>
</tr>
</tbody>
</table>

a) No, the firm is not perfectly competitive. This is evident because MR < P. The firm must have some control over price for this to be true.

b) produce 3 meals and sell them for $350 each
d) produce 5 meals and sell them for $250.

c) produce about 29 - 30 units and charge about $52.
d) The firm is making profits. P > ATC at the firm’s Q.
e) Keep operating. P > AVC.
f) Stay in the industry. At the firm’s optimal Q, P > ATC.
g) about $34 and 46 units respectively
h) See the graph. The area of the deadweight loss is about $206.

The graph is on the next page.
6. a) No, the firm is not perfectly competitive. This is evident because MR < P. The firm must have some control over price for this to be true.

b & c) produce about 20 or 21 units and charge about $62

d) The firm is making losses. P < ATC.
e) Keep operating in the short-run. P > AVC.
f) Exit. At the firm’s optimal Q, P < ATC.
g) about $57 and 34 units respectively

h) See the graph. The area of the deadweight loss is about $150 to $160.

The graph is on the next page.
7. Produce 1,500 shirts (where MR = MC) and keep operating in the short-run (P > AVC). Note that P = MR. Decelle’s firm is a price taker, i.e. perfectly competitive.

8. a (P > ATC. This means Decelle is making economic losses)

9. a. Price b. MC

<table>
<thead>
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<th>Condition</th>
<th>How to increase net benefits to society</th>
</tr>
</thead>
<tbody>
<tr>
<td>P &gt; MC</td>
<td>produce more</td>
</tr>
<tr>
<td>P = MC</td>
<td>optimal amount of production</td>
</tr>
<tr>
<td>P &lt; MC</td>
<td>produce less</td>
</tr>
</tbody>
</table>

10. Part of the answer may be that the demand for older music is less than demand for newer artists.

A second reason is that copyrights are a barrier to entry. The barriers to entry for a particular artist’s music are very high if that music is copyrighted. You can’t record the song without the artist’s permission. These barriers to entry give the artist market power and market power means higher prices, ceteris paribus.

Works which are no longer copyrighted, like Beethoven’s 5th symphony, can legally be recorded and produced by anyone. i.e. The barriers to entry in producing Beethoven’s songs are relatively lows. This means less market power and lower prices, ceteris paribus.