Problem Set 9
Economics 101
Due November 9, 2016 by 11:00 AM

This problem set is designed to familiarize you with the concepts related to monopoly, price discrimination, and oligopoly.

1. A monopolist is:
   a) One buyer in the market
   b) One seller in the market
   c) One market
   d) One good in the market

2. A profit maximizing monopolist sets quantity of output so that which of the following is true?
   a) Price is equal to marginal cost
   b) Profits are zero
   c) Marginal cost equals average cost
   d) Marginal revenue equals marginal cost

3. Compared to a competitive market, a market with a monopolist has which of the following
   a) Higher price to consumers, higher equilibrium output
   b) Higher price to consumers, lower equilibrium output
   c) Lower price to consumers, higher equilibrium output
   d) Lower price to consumers, lower equilibrium output

For Questions 4 through 7, please use the following information for a monopolist in the market. In this market it is not possible for other firms to enter.

<table>
<thead>
<tr>
<th>Quantity Produced</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>350</td>
</tr>
<tr>
<td>11</td>
<td>374</td>
</tr>
<tr>
<td>12</td>
<td>396</td>
</tr>
<tr>
<td>13</td>
<td>416</td>
</tr>
<tr>
<td>14</td>
<td>434</td>
</tr>
<tr>
<td>15</td>
<td>450</td>
</tr>
<tr>
<td>16</td>
<td>480</td>
</tr>
<tr>
<td>17</td>
<td>527</td>
</tr>
<tr>
<td>18</td>
<td>576</td>
</tr>
<tr>
<td>19</td>
<td>646</td>
</tr>
<tr>
<td>20</td>
<td>720</td>
</tr>
</tbody>
</table>
The monopolist faces the following demand function

<table>
<thead>
<tr>
<th>Price</th>
<th>Quantity Demanded</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>9</td>
</tr>
<tr>
<td>48</td>
<td>10</td>
</tr>
<tr>
<td>46</td>
<td>11</td>
</tr>
<tr>
<td>44</td>
<td>12</td>
</tr>
<tr>
<td>42</td>
<td>13</td>
</tr>
<tr>
<td>40</td>
<td>14</td>
</tr>
<tr>
<td>38</td>
<td>15</td>
</tr>
<tr>
<td>36</td>
<td>16</td>
</tr>
<tr>
<td>34</td>
<td>17</td>
</tr>
<tr>
<td>32</td>
<td>18</td>
</tr>
<tr>
<td>30</td>
<td>19</td>
</tr>
<tr>
<td>28</td>
<td>20</td>
</tr>
<tr>
<td>26</td>
<td>21</td>
</tr>
</tbody>
</table>

[Hint: calculate marginal revenue, marginal cost and average cost for each quantity sold by the monopolist before answering the questions]

4. At what level of output will the monopolist produce?

a) 10  
b) 12  
c) 14  
d) 26

5. At what price will the monopolist sell the output?

a) 50  
b) 44  
c) 36  
d) 30

6. What are the profits of the monopolist in the short-run?

a) Zero  
b) $96  
c) $100  
d) $132

7. What are the monopolist profits in the long-run?

a) Zero  
b) $96  
c) $100  
d) $132
8. A firm that is a perfect price discriminator is best described as:

- a) Some who can find the best price
- b) Someone with prejudice
- c) A firm that charges each customer exactly his or her willingness to pay
- d) A firm that charges different prices according to observable characteristics of a person

9. A firm that is a non-perfect price discriminator tries to:

- a) Charge prices according to observable characteristics of people that are related to willingness to pay
- b) Uses coupons
- c) Always gives a student discount
- d) Charges each consumer according to his or her willingness to pay.

For Questions 10 through 12, consider a market with one firm that has a constant marginal cost of $16 and faces consumers that are willing to pay the following amounts for 1 unit (each) of the product of the firm:

<table>
<thead>
<tr>
<th>Consumer</th>
<th>Price that last consumer would be willing to pay</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$24</td>
</tr>
<tr>
<td>2</td>
<td>$20</td>
</tr>
<tr>
<td>3</td>
<td>$18.50</td>
</tr>
<tr>
<td>4</td>
<td>$16</td>
</tr>
<tr>
<td>5</td>
<td>$14</td>
</tr>
<tr>
<td>6</td>
<td>$12</td>
</tr>
<tr>
<td>7</td>
<td>$10</td>
</tr>
<tr>
<td>8</td>
<td>$4</td>
</tr>
</tbody>
</table>

10. What price would the firm charge if it were a monopolist, but could not engage in price discrimination?

- a) $24
- b) $20
- c) $18.50
- d) $16

11. What are the profits of the firm if it is a monopolist, but cannot engage in price discrimination?

- a) Zero
- b) $4
- c) $8
- d) $14.50
12. What are the profits of the monopolist if it engages in perfect price discrimination?

a) Zero  
b) $ 4  
c) $ 8  
d) $ 14.50

13. Oligopoly is:

a) A board game used to learn the principles of firm behavior  
b) Another term used to refer to the OPEC Cartel  
c) A market without bounds  
d) A market structure in which only a few sellers offer a similar or identical products

14. The main tension for oligopoly firms is best described as:

a) Each firm would be a monopoly if it could drive the others out of business  
b) Revenues are low and costs are high  
c) The highest joint profits are made by cooperating, but each firm has an incentive to cheat  
d) Consumers don’t like oligopolies, but consumers buy the products of the oligopoly

15. When there is an oligopoly with cooperation, the total profits (of all firms in the industry) will usually be:

a) Negative  
b) Zero  
c) Equal to the monopoly profits  
d) Greater than zero and less than monopoly profits

16. When there is an oligopoly without cooperation, the total profits (of all firms in the industry) will usually be:

a) Negative  
b) Zero  
c) Equal to the monopoly profits  
d) Greater than zero and less than monopoly profits

Consider the following information for two supermarket chains. Each firm may advertise or not advertise. If both firms do not advertise, total profits are 800 million, split evenly between the two firms. If both firms advertise, they lose profits and make only $200 million each. If one firm does not advertise, while the other does, the firm that advertises makes the highest profits of $500 million and the other firm makes the lowest profits of $100 million. These outcomes are shown in the following table:
<table>
<thead>
<tr>
<th></th>
<th>Ralphs</th>
<th></th>
<th>Don’t Advertise</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vons Advertise</td>
<td>Vons = 200 million</td>
<td>Ralphs = 200 million</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Vons = 500 million</td>
<td>Ralphs = 100 million</td>
<td></td>
</tr>
<tr>
<td>Don’t Advertise</td>
<td>Vons = 100 million</td>
<td>Ralphs = 500 million</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Vons = 400 million</td>
<td>Ralphs = 400 million</td>
<td></td>
</tr>
</tbody>
</table>

17. If Vons knows that Ralphs is going to advertise, what is Vons best strategy?

a) Don’t advertise  
b) Advertise  
c) It doesn’t matter  
d) Uncertain  

18. If Vons knows that Ralphs is not going to advertise, what is Vons best strategy?

a) Don’t advertise  
b) Advertise  
c) It doesn’t matter  
d) Uncertain  

19. Does Vons have a dominant strategy?

a) Yes, don’t advertise  
b) Yes, advertise  
c) No  
d) Uncertain  

20. If both firms follow their dominant strategy, what will the profits of each firm be?

a) Vons = $400 million, Ralphs = $400 million  
b) Vons = $500 million, Ralphs = $100 million  
c) Vons = $100 million, Ralphs = $500 million  
d) Vons = $200 million, Ralphs = $200 million