Chapter Summary

In this chapter, we’ve seen some of the subtleties of monopolies and their pricing policies. Compared to a perfectly competitive market, a monopoly charges a higher price, produces a smaller quantity, and wastes resources in the pursuit of monopoly power. On the positive side, some of the products we use today might never have been invented without the patent system and the monopoly power it grants. Firms with market power often use price discrimination to increase their profits. Here are the main points of the chapter:

- Compared to a perfectly competitive market, a market served by a monopolist will charge a higher price, produce a smaller quantity of output, and generate a deadweight loss to society.
- Some firms use resources to acquire monopoly power, a process known as rent seeking.
- Patents protect innovators from competition, leading to higher prices for new products but greater incentives to develop new products.
- To engage in price discrimination, a firm divides its customers into two or more groups and charges lower prices to groups with more elastic demand.
- Price discrimination is not an act of generosity; it’s an act of profit maximization.

Applying the Concepts

After reading this chapter, you should be able to answer these four key questions:
1. What is the value of a monopoly?
2. What happens when a patent expires and a monopoly ends?
3. When do firms have an opportunity to charge different prices to different consumers?
4. Does voluntary pricing work?

In this chapter, we study the decisions made by a monopoly firm. Monopoly refers to a market in which a single firm sells a product that does not have any close substitutes. In particular we see that a monopoly:
- exercises market power, the ability of a firm to affect the price of its product.
- requires barriers to entry, which prevent other firms from entering a profitable market, in order to keep their monopoly position.
- takes advantage of its market power when making pricing decision.
A monopoly occurs when some barrier to entry prevents firms from entering a profitable market. Some types of barriers to entry include:

- **Patents.** A patent grants a firm the exclusive right to sell a new product for some period of time. Governments may also issue licenses to a particular firm to sell a product.

- **Network externalities.** This is the situation in which the value of a product to a consumer increases with the number of other consumers who use it.

Think of cell phone service. One way to make your cell phone service more valuable is to allow you to talk free (no minutes or money charged) to other subscribers on the same network. The more friends you have on your network, the more valuable your phone service becomes, and the harder it will be for a new entrant to lure you away.

- Government licensing. This occurs when government chooses a single firm to sell a particular product.

- Ownership of a key resource. The DeBeers company controls about 80% of the world’s production of diamonds.

- **Natural monopoly.** This is a market in which the economies of scale in production are so large that only a single large firm can earn a profit.

### 7.1 The Monopolist’s Output Decision

Just as the competitive firm, the monopolist will choose to produce output to the point where marginal revenue is equal to marginal cost. For the monopolist, however, marginal revenue and price are not the same.

**The Marginal Principle**

Increase the level of an activity as long as its marginal benefit exceeds its marginal cost. Choose the level at which the marginal benefit equals the marginal cost.

Figure 7.1 in your text provides a demand schedule for a monopolist. Since the monopolist is the only firm in the market and faces the market demand curve, in order to increase output, the monopolist must lower the price on all units that it sells. Lowering the price to sell an additional unit of output has two impacts:

- **Good news:** The firm earns new revenue by selling an additional unit of output.
- **Bad news:** The firm earns less revenue on all the units it would have sold at a higher price.

Suppose in Figure 7.1 the monopolist is initially selling 3 units at a price of $10 each. To sell a fourth unit, the monopolist must lower the price to $8 for every unit that it sells. There are two ways to convince yourself that the marginal revenue from selling unit four is less than the price of unit four:

- You can see that total revenue will increase from $30 to $32, a $2 increase in revenue even though the price per unit is now $8.
- The good news of selling unit four is that we earn $8 in new revenue when we sell unit four. The bad news of selling unit four is that we lose $2 per unit on each of the first three units since we could have sold them for $10, but are now selling them for $8. The bad news means we give up $6 in revenue from the first three units. The total change in revenue is the $8 in good news minus the $6 in bad news, for marginal revenue of $2.
Remember

When a firm faces a downward sloping demand curve, marginal revenue will be less than price.

Key Formula

\[
\text{marginal revenue} = \text{new price} + (\text{slope of demand curve} \times \text{old quantity})
\]

A monopolist chooses its profit maximizing output and price by:

- Finding the quantity at which marginal revenue is equal to marginal cost. This is shown as point \( a \) in Figure 7.2.
- Charging the price from the demand curve which corresponds to the monopoly’s desired quantity of output. This is point \( b \) in Figure 7.2.
- Earning the profits shown as the shaded rectangle in Figure 7.2 with height of $7 (the difference between the price of output at point \( b \) and the average cost of output at point \( c \)), and base of 900 units, the amount sold by the monopolist.

7.2 The Consequences of Monopoly

Figure 7.3 in your text illustrates the effect of monopoly on price and output in a market. For simplicity, assume there are no fixed costs and firms produce with a constant marginal cost. If this market were a monopoly market, the firm would produce 200 doses per hour, at a marginal cost of $8 per dose, and charge $18 per unit. The monopolist will earn a profit of $2,000. This is illustrated in Panel A of Figure 7.3.

Remember from Chapter 6 that in a competitive market, price and marginal cost are equal. Thus, in a competitive market we will produce 400 units of output at a price of $8 per unit, the marginal cost of production. We see this in Panel B.

Remember

A monopoly market will always have a higher price and lower output than a competitive market.

The monopoly will make consumers worse off than they would be under competition. This is illustrated in Figure 7.4 in your text. At the competitive output level and price, consumer surplus consists of areas A, B, and D. Total surplus in the market consisted of areas A, B, and D.

With the monopoly output level and price consumer surplus decreases to area A. Area B is now producer surplus. Total surplus is the sum of areas A and B. Area D is not surplus to either producers or consumers and is called the deadweight loss from monopoly. The deadweight loss from monopoly is a measure of the inefficiency from monopoly; equal to the decrease in the market surplus.
To see why look at triangle D. The base of triangle D represents all the units of the good which would have been sold under competition, but which are not sold under monopoly. The value that these trades would have generated has been lost to the economy. You can see that each of these units would add value to the economy as the demand curve, which measures what consumers are willing to pay for each unit, is above the marginal cost curve, which measures the cost of producing each unit, for all of these now untraded units. Because the monopolist will not sell these units, the surplus generated from these trades will not be realized.

The area of triangle D can be calculated by the formula:

$$\text{area} = 0.5 \times \text{(base)} \times \text{(height)}$$

In this case the base of the triangle is the 200 doses of the drug that will not be produced. The height of the triangle is $10. This gives us a deadweight loss of:

$$\text{area} = 0.5 \times 200 \times 10 = \$1,000$$

**Rent seeking**, the process of using public policy to gain economic profit, can also be considered an efficiency cost of monopoly. It could be said that monopoly profits are inefficient as they are a pool of money that can be used for rent seeking.

Suppose that a monopolist can spend its profits either developing a lower cost means of producing output, or giving money to legislators to protect their monopoly standing. From society’s viewpoint we would rather they spend money reducing their cost of production as this will lead to lower prices and greater output in the market. In fact, the monopoly may prefer to spend the money protecting their market position. This has no benefit to society and thus would be considered an efficiency cost to society. Faced with the choice of losing all of its profits to entrants, or spending its profits to prevent entry, the monopoly would prefer to spend money to keep entrants out.

Let’s review an Application that answers one of the key questions we posed at the start of the chapter:

1. What is the value of a monopoly?

**APPLICATION 1: A CASINO MONOPOLY IN CRESWELL, OREGON?**

To encourage people to vote to allow a casino a developer offered adults in Creswell, Oregon, a total of $2 million per year if the casino were to be approved. In order to make this worthwhile, the profits from the casino would have to be greater than $2 million per year. This is an example of rent seeking behavior.

### 7.3 Patents and Monopoly Power

A patent gives a firm the exclusive right to produce a product for 20 years. In exchange for the negatives associated with monopoly, higher prices, lower output, deadweight loss, the patent encourages innovation and society benefits from the introduction of new products. Thus, patents may be socially efficient even though the monopolies they create are economically inefficient.

Patent protection is quite important in the pharmaceutical industry. It is very expensive to develop, test, and bring to market a new drug therapy. However, it is relatively simple to mimic an existing drug.
Without patent protection many of the drugs that we rely upon in society might not have been brought to market as the companies would have been unable to recover the cost of developing those products.

Let’s review an Application that answers one of the key questions we posed at the start of the chapter:

2. What happens when a patent expires and a monopoly ends?

APPLICATION 2: BRIBING THE MAKERS OF GENERIC DRUGS

When a patent on a drug expires, other firms introduce generic versions of the drugs. How much does a drug company lose because of generic sales? This Application suggests that in one case, Schering-Plough paid $60 million to delay the introduction of a generic drug. Because Schering-Plough was willing to give up $60 million to avoid competition, the monopoly profits to be earned were at least $60 million. Bribing a generic firm to stay out of the market is an example of rent-seeking behavior. Schering-Plough was willing to spend part of their monopoly profits in an attempt to keep monopoly control over the market.

7.4 Price Discrimination

Price discrimination is the practice of selling a good at different prices to different consumers. The most common form of price discrimination is the practice of selling goods to different groups of customers at different prices. Many businesses offer students and senior citizens discounts not available to other customers. Firms engage in price discrimination in an effort to increase their profits.

To price discriminate, three conditions must be met:
1. The firm must have market power, the ability to set the price for their product. For this reason a perfectly competitive firm would never be able to price discriminate.
2. The firm must be able to identify different groups of customers based upon their willingness to pay for the product.
3. The firm must be able to prevent resale.

Remember

To determine the output level and price in different markets, a price discriminating firm simply finds the output level at which marginal revenue is equal to marginal cost in each market. The price in each market is determined from the demand curves. Marginal revenue differs between the markets because the markets have different demand curves.

When a firm price discriminates, those with less elastic demand for the good will tend to pay higher prices.

Some examples of price discrimination discussed in the text are:
- Discounts on airline tickets for leisure travelers.
- Coupons for restaurants and grocery stores.
- Manufacturer’s rebates.
- Senior citizen and student discounts. See Figure 7.5 for a graph of price discrimination by senior citizen discount.
Let’s review two Applications that answer key questions we posed at the start of the chapter:

3. When do firms have an opportunity to charge different prices to different consumers?

APPLICATION 3: PAYING FOR A COLD SOFT DRINK ON A HOT DAY
If warmer temperatures change a person’s taste for cold drinks, then we would expect that the demand for cold drinks would be higher on hot days. As a result, people would be willing to pay more for a cold drink on hot days. Coca-Cola developed a vending machine to take advantage of this demand relationship. The machine would increase or decrease the price of cola as the weather changed so that on hot days, when demand would be higher, the price of a cola would also be higher. This is a situation in which it is easy to determine when consumers might have different demand curves for a product. While the ability to price discriminate is present here, the machine has yet to be used, due largely to consumer protests.

4. Does voluntary pricing work?

APPLICATION 4: RADIOHEAD LETS CONSUMERS PICK THE PRICE
The band Radiohead tried an innovative pricing strategy for their 2007 release “In Rainbows,” they allowed consumers to download the music and pay what they wanted. This is a good example of price discrimination as consumers could choose how much they would pay. Was it a good idea for the band? The Application points out that average revenue per download was about the same as what the band would earn from conventional CD sales. The Application points out that this might be a good strategy if it encourages some people who would have downloaded the music illegally to pay something for the music or if it encourages some people to purchase the music who would not have paid $15 for a conventional CD.
Activity

The following table gives a demand curve for a market. Assume there are no fixed costs in the market and an unlimited number of units of the product can be produced at a marginal cost of $5 per unit. As a result, average cost and marginal cost are the same.

a. If the market was served by competitive firms, the price in the market would be: ________ and the market quantity would be __________.

   (Bonus: the consumer surplus in the market would be __________.)

b. Fill in the table.

<table>
<thead>
<tr>
<th>Price</th>
<th>Q</th>
<th>TR</th>
<th>MR</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>24</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>36</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>42</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>48</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>54</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

c. If this market was served by a monopolist, the monopoly would sell __________ units and charge a price of __________ dollars per unit. Monopoly profit would be __________.

d. Bonus. At the monopoly outcome, consumer surplus is __________ and the deadweight loss from monopoly is __________.
Answers

a. The price would be $5; the quantity would be 30 units. Consumer surplus would be $75. To find this, recognize that the height of the consumer surplus triangle is the difference between the vertical intercept and $5, and the base of the consumer surplus triangle is the number of units sold.

b. Complete the table.

<table>
<thead>
<tr>
<th>Price</th>
<th>Q</th>
<th>TR</th>
<th>MR</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>6</td>
<td>54</td>
<td>9</td>
</tr>
<tr>
<td>8</td>
<td>12</td>
<td>96</td>
<td>7</td>
</tr>
<tr>
<td>7</td>
<td>18</td>
<td>126</td>
<td>5</td>
</tr>
<tr>
<td>6</td>
<td>24</td>
<td>144</td>
<td>3</td>
</tr>
<tr>
<td>5</td>
<td>30</td>
<td>150</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>36</td>
<td>144</td>
<td>-1</td>
</tr>
<tr>
<td>3</td>
<td>42</td>
<td>126</td>
<td>-3</td>
</tr>
<tr>
<td>2</td>
<td>48</td>
<td>96</td>
<td>-5</td>
</tr>
<tr>
<td>1</td>
<td>54</td>
<td>54</td>
<td>-7</td>
</tr>
</tbody>
</table>

c. Monopolist would sell 18 units at $7 per unit. Profit would be \((7 - 5) \times 18 = 36\).

d. Consumer surplus would be $27. Deadweight loss would be $12. The height of the deadweight loss triangle would be 2 units (the $7 monopoly price minus the $5 marginal cost) and the base would be 12 units (the difference between the 30 units sold in a competitive market and the 18 units sold in a monopoly market).
Key Terms

**Barrier to entry:** Something that prevents firms from entering a profitable market.

**Deadweight loss from monopoly:** A measure of the inefficiency from monopoly; equal to the decrease in market surplus.

**Market power:** The ability of a firm to affect the price of its product.

**Monopoly:** A market in which a single firm sells a product that does not have any close substitutes.

**Natural monopoly:** A market in which the economies of scale in production are so large that only a single large firm can earn a profit.

**Network externalities:** The value of a product to a consumer increases with the number of other consumers who use it.

**Patent:** The exclusive right to sell a new good for some period of time.

**Price discrimination:** The practice of selling a good at different prices to different consumers.

**Rent seeking:** The process of using public policy to gain economic profit.

Practice Quiz

*(Answers are provided at the end of the Practice Quiz.)*

1. Match one of the terms below with the following definition: The ability of a firm to affect the price of its product.
   a. Monopoly
   b. Network externalities
   c. Patent
   d. Market power

2. Select the term below that most closely approximates the following statement: When the scale economies in production are sufficiently large that a market can support only one firm.
   a. Monopoly
   b. Patent
   c. Natural monopoly
   d. Barriers to entry

3. Select the most appropriate answer based on the textbook reading. Electricity transmission is an example of:
   a. an industry with network externalities.
   b. a natural monopoly.
   c. an industry with market power.
   d. an industry where one firm is able to prevent other firms from entering.
4. Refer to the figure below. How much is the marginal revenue associated with increasing quantity sold from 3 to 4 units?

![Marginal Revenue Graph]

a. $2  
b. $4  
c. $6  
d. $8

5. At a price of $30, a firm sells 150 units of output per day. The slope of the demand curve is 0.1 (in absolute value). The firm is considering cutting price to $25 to raise sales; if the marginal cost of production is $8, what should the firm do?
   a. Increase price  
b. Keep its price the same  
c. Decrease price  
d. Shut down

6. Which of the key principles of economics is used by the firm to choose how much to produce and what price to charge?
   a. The principle of opportunity cost  
b. The principle of diminishing returns  
c. The marginal principle  
d. The principle of voluntary exchange
7. Refer to the figure below. In order to maximize profit, what price should the firm charge?

![Diagram of marginal cost, average cost, and market demand]

a. $18  
b. $15  
c. $12  
d. $8

8. Refer to the figure below. How much of the total fixed cost is the monopoly able to pay when it sells 10,000 units?

![Diagram of marginal cost, average cost, and demand]

a. $15,000  
b. $25,000  
c. $40,000  
d. $10,000
9. Refer to the figure below. Assume that the firm is producing 600 units. According to the marginal principle, what should the firm do in order to maximize profit?

![Graph of Marginal Cost, Average Cost, Marginal Revenue, and Demand]

- a. The firm should maintain the current level of output because they are making profits.
- b. The firm should maintain the current level of output, because marginal revenue is greater than marginal cost, and price is the highest.
- c. The firm should increase the level of output, because marginal revenue is greater than marginal cost.
- d. The firm should increase the level of output to reach minimum average cost.

10. Suppose that all of the wheat farms are purchased by one firm. Relative to the current (competitive) price and quantity (and assuming that nothing else has changed), we would expect the new monopolist to:

- a. sell more and charge less.
- b. sell less and charge less.
- c. sell more and charge more.
- d. sell less and charge more.

11. Refer to the figure below. How much is consumer surplus in the monopoly case?

![Diagram showing consumer surplus]

- a. $abe$
- b. $acf$
- c. $edf$
- d. $bcde$

12. As compared to perfect competition, monopolies:
   a. reduce consumer surplus, create positive economic profits, and generate a deadweight loss.
   b. increase consumer surplus, create positive economic profits, and generate a deadweight loss.
   c. reduce consumer surplus, create negative economic profits, and generate a deadweight loss.
   d. reduce consumer surplus, create positive economic profits, and generate a deadweight gain.

13. Refer to the figure below. What is the area of consumer surplus when the market is served by a perfectly competitive firm?

![Diagram](image.png)

   a. C
   b. C + R
   c. C + R + D
   d. The consumer surplus area is not shown.

14. Price discrimination is the practice of:
   a. dividing consumers into two or more groups, but charging the same prices to each group.
   b. dividing consumers into two or more groups and charging different prices to each group.
   c. dividing market demand among producers who will charge the same prices to consumers.
   d. discriminating against consumers on the basis of race, sex, religion, or national origin.

15. Which of the following conditions is necessary for a firm to be able to practice price discrimination?
   a. The firm must have market power.
   b. The firm must be able to separate consumers into different groups.
   c. The firm must be able to prevent resale.
   d. All of the above.

16. Which of the following is an example of price discrimination?
   a. Meals in New York City cost more than meals in a small town.
   b. The grocery store has a “buy one, get one free” sale on eggs.
   c. The local department store has special sale prices that are only good from 8 a.m. to 11 a.m.
   d. Insurance companies charge more to insure an expensive car than a cheap one.

17. The only legal restriction concerning price discrimination is that firms cannot use it to:
   a. discriminate against the average consumer.
   b. increase the number of their customers.
   c. drive rivals out of business.
   d. discriminate against senior citizens.
18. If the demand by seniors is relatively more elastic than the demand by non-seniors:
   a. price discrimination would have seniors paying more than non-seniors for the good.
   b. price discrimination would have seniors paying less than non-seniors for the good.
   c. non-seniors will buy the same amount of the good regardless of the price.
   d. seniors will demand zero quantity at any price other than the current market price.

19. When a monopoly cuts price, there is good news and bad news, which explains why marginal revenue falls below average revenue (demand) as output increases. Expand this statement.

20. Explain the concept of deadweight loss.

21. Compare the profit-maximizing decisions of a monopoly to those of a perfectly competitive firm.

22. Explain the concept of rent seeking.

23. Define price discrimination and list the conditions necessary to practice it.

24. Suppose that you are the government official in charge of issuing patents. How would you use your knowledge of economics to establish a patent policy?

25. Explain why price discrimination will not work if consumers can resell the product for which price discrimination is being attempted.
Answers to the Practice Quiz

1. d. Market power is the ability of a firm to affect the price of its product. A monopolist is one type of market structure where the firm has market power.

2. c. That’s the definition of a natural monopoly: When the scale economies in production are sufficiently large that a market can support only one firm.

3. b. A natural monopoly occurs when the scale economies in production are so large that only a single large firm can earn a profit. The market can support only one profitable firm because if a second firm entered the market, both firms would lose money. Some examples are cable TV service, electricity transmission, and water systems.

4. a. The total revenue of 3 units equals ($10 x 3) = $30. The total revenue of four units equals (8 x 4) = 32. Then ($32 - $30)/(4 - 3) = $2.

5. c. Marginal revenue = New Price – (Quantity x Slope of demand curve) \( MR = \$25 - (150*0.1) = \$10 \). Since marginal revenue exceeds marginal cost, the firm should produce more output, which requires lowering the price.

6. c. The marginal principle can be used by the firm to choose how much to produce and what price to charge. To maximize profit, the monopolist picks the output level where marginal revenue equals marginal cost.

7. b. Marginal cost equals marginal revenue when 900 units of output are produced and sold. Consumers are willing to pay $15 for 900 units.

8. a. The firm collects $40,000 of revenue, pays $25,000 of variable cost, and the rest, $15,000, pays for part of the total fixed cost.

9. c. In order to maximize profit, a monopoly sets marginal revenue equal to marginal cost, and charges the price consumers are willing to pay for that many units of output.

10. d. Relative to perfectly competitive industries, monopolies will restrict output, allowing them to charge a higher price and make a profit. This results in a net loss of benefits to society.

11. a. The perfectly competitive industry produces 200 doses, and charges $18 per dose. The area \( abe \) is the area above that price level and below the demand curve.

12. a. When monopolies restrict output, they reduce the consumer surplus available to consumers under perfect competition. Some of the lost consumer surplus is transferred to the monopolist as positive economic profits, while the rest become deadweight loss.

13. c. The competitive price is $8. The area above $8 and below the demand curve is the area of consumer surplus.

14. b. Price discrimination consists of dividing consumers into groups and charging prices based on willingness or ability to pay.
15. d. A firm has an opportunity for price discrimination if three conditions are met: Market power; different consumer groups; and, resale is not possible.

16. c. Only the early morning sale is a price discrimination scheme. Meals cost more in cities because firm costs are higher. It costs more to insure an expensive car because the company’s liability is higher, and the egg sale is available to everyone.

17. c. Firms cannot use price discrimination to drive rivals out of business.

18. b. The less elastic market segment will pay a lower price when firms are able to price discriminate.

19. The good news of a cut in price is that the firm can sell more output, thus, revenue increases. The bad news is that the firm will receive a lower price, thus, revenue decreases. When the good news outweighs the bad news, marginal revenue is positive. When the bad news outweighs the good news, marginal revenue is negative.

20. A switch from perfect competition to monopoly decreases consumer surplus by more than it increases profits, so there is a net loss or a deadweight loss to society. The deadweight loss is explained by a combination of lower output available, at a higher price. The decrease in consumer surplus is greater than the amount of deadweight loss. Some of the consumer surplus is transferred from consumers to the monopoly. The deadweight loss triangle is the portion of consumer surplus that does not represent a gain to anyone else.

21. Both the perfectly competitive firms and the monopoly use the marginal principle to determine the profit-maximizing level of output, that is, both set the level of output where marginal revenue equals marginal cost. In the perfectly competitive case, price equals marginal revenue; therefore, the competitive firm sets output where price equals marginal cost. In the monopoly case, price is greater than marginal revenue for any level of output; therefore, when the firm sets marginal revenue equal to marginal cost in order to maximize profit, the corresponding price is higher than that. The profit-maximizing decision results in a lower level of output produced and a higher price in the monopoly case.

22. A monopoly may use some or all of its positive economic profits to try to prevent others from entering the industry. This activity is called rent-seeking behavior. The firm spends money to persuade the government to erect barriers to entry and pick the firm as the monopolist. Rent seeking is inefficient because it uses resources that could be used in other ways. Such activity may yield nothing of social value. All it does is shift income from buyers to the monopoly at a cost of lost production.

23. Price discrimination is the process under which a firm divides consumers into two or more groups and picks a different price for each group. The only legal restriction on price discrimination is that a firm cannot use it to drive rival firms out of business. A firm has an opportunity for price discrimination if three conditions are met: 1) firms must have market power, 2) firms must be able to identify and divide consumers among particular groups, and 3) the products that one firm offers are not offered for resale by another firm.

24. There are trade-offs from patents that must be taken into account. It is sensible to grant a patent for a product that would otherwise not be developed but not sensible to grant one for a product that would be developed even without a patent. The purpose of the patent is to provide incentives that will cause the firm to respond by developing new products. The length of the patent should be sufficient for the monopoly to earn monopoly profits that will allow it to recover its research and development costs, but not long enough to preserve monopoly power that will result in higher prices.
25. If consumers can resell the product, those who are charged the lower price will be able to sell the product they buy to those who are charged more by the producer. The price resellers will charge is a price somewhere between the low discrimination price and the high discrimination price. Eventually, only those charged the lower price will be the ones buying from the producer. In such a case, the producer would be better off charging a uniform price.