1) See figure 14-7 (pg. 306); profit maximizing firm output (q) increases as market price increases.

2) Constant Returns to Scale for the industry.
   Note: \( Q_{\text{Competition}} > Q_{\text{Monopoly}} \)

3) A monopolist that cannot price discriminate must lower price to all customers to increase sales. The MR has the same P intercept but is twice as steep as the demand curve.

4) No - they charge as high a price as they can and sell the profit maximizing level of output. If they increase price - quantity sold falls (and if demand is elastic - total revenue also falls).

5) Better substitutes - demand become more elastic, shifts left, and profits fall. No barriers - market is “contestable” and economic profits would have to be zero to deter entry of new firms. Even if there were one producer they would have to charge a price = to ATC in order to deter entry - thus this industry is not a theoretical “monopoly” since one of the assumptions doesn’t hold. Barriers to entry is an important assumption in our model of monopoly.

6) Yes - if \( P < ATC \) for all possible levels of output.

7) Like figure 15-9 (pg. 333), but include a MR curve and level of production determined by the intersection of MR and MC. There is allocative inefficiency since less than the efficient quantity will be produced. No, natural monopolist can not make a profit if it produces where \( P = MC \) since \( MC < ATC \) if \( ATC \) is falling.

8) Perfect. Movies; air travel; goods purchased with use of coupons (see pages 339 & 342)....

9) Prevent Resale, Seller must be able to learn the different prices that buyers in different groups will pay.

10) Canadians would try to buy wine in the U.S. instead of in Canada. If illegal to transport wine across the border, then this would be more difficult.

11) YES – in theory a monopolist will always produce on the elastic portion of its demand. If a monopolist is on the inelastic portion of demand - they will raise price, total revenue (TR) will increase, total cost (TC) will decrease, so profits MUST increase. They will stop raising price at some point after reaching elastic part of the demand curve.

12) The promise of future monopoly power can encourage research and development expenditures, and so the development of new goods.

13) Advertising can: i) provide information and ii) allow for brand-names (and so possible increase in quality).

14) With Monopolistic Competition, competitors enter the (broadly defined) market if profit is positive; so in long run economic profits of firms are zero, and there is no incentive for new firms to enter.

15) They produce more than they agreed to (and typically lower price below that agreed to). If only they cheat, by selling more than agreed to, they can earn higher economic profit.
16) Falling transportation costs and reduced barriers to international trade reduce firm’s ability to effectively collude. If fixed cost (FC) is high and marginal cost (MC) is low, then the benefit to firms is particularly large if they can effectively collude. If consumers are “locked- in” as they are with computer software, this represents a barrier to entry of new firms, and makes collusion between existing firms less difficult.

17) **Pure Competition**: many independent buyers and sellers; undifferentiated good; no barriers to entry.
**Monopoly**: One producer of a well defined good with no good substitutes.
**Oligopoly**: few interdependent producers; good may be differentiated (Autos) or may not be differentiated (Steel).
**Monopolistic Competition**: many producers in the market (broadly defined, e.g., cola) but single sellers of individual brands (e.g., Pepsi). Firms are interdependent (the price of Pepsi affects demand for Coke).

*Eggs – Pure Competition; Shampoo – Monopolistic Competition; Autos – Oligopoly; Electricity (sold to residential customers who can not choose their supplier) – Monopoly.*

18) Pure Competition: profit maximizing output determined where price equals marginal cost (P=MC) - see Figure 14-5a (pg. 304). New firms will enter and the price will fall, causing economic profits to fall to zero in the long run.

19) Q_M (Q_MAX in Figure 15-4 in the text) is directly below the point where MC=MR Allocatively efficient level of output, Q_e is directly below point where MC intersects the demand curve (and so MC=P). Government could nationalize the firm and take over production, regulate the firm, or break the monopolist into smaller firms. This last method is least desirable when economies of scale are important (e.g., the firm is a “natural monopolist”). A market with one seller, but low barriers to entry is called “contestable,” and the firm can not act like out theoretical monopolist (even though they may be the only seller of a particular good). There is not a good reason based on efficiency for government intervention in such a market.

20) At price = P_1, the industry is in long run competitive equilibrium. With zero profits earned by firms, there is no incentive for firms to enter or exit this industry. If all the firms produce only 8 units of output, price will rise to = P_2. Firm profits would be depicted by a rectangle with base from 0 to 8 and height of P_2 minus ATC (height of ATC curve when q=8). At a fixed price of P_2 an individual firm could earn higher economic profits by producing more, and this gives them an incentive to “cheat.” If many small firms produce in excess of 8 units, the total amount supplied will increase significantly above 8,000 and the market price will fall. As market price falls, the profits of all firms will fall.