



## AP Microeconomics 2000 Student Samples

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a) A monopolist determines its profit maximizing level of output by setting marginal revenue (MR) equal to marginal costs (MC). At this point, the monopoly maximizes profits because ~~it would~~ the cost ~~more~~ to make the next unit is more than ~~it would bring~~ the revenue it would bring ( $MC > MR$ ), and the revenue from the last unit was more than its cost ( $MR > MC$ ), making it worthwhile. The monopolist determines its price by the demand curve - it charges whatever the demand curve requires to sell the <sup>profit-maximizing</sup> output.

b) i) Profit maximizing output:  $Q_1$  } The output is where  
" " price:  $P_5$  }  $MR = MC$ , the price is whatever consumers pay for this quantity (B on demand curve).  
ii) The line segment  $AD'$  is elastic, because in this segment MR is positive, so total revenue <sup>(TR)</sup> and price must move in opposite directions. By the TR test, this region must then be elastic.

c) equilibrium price:  $P_4$  } A competitive firm produces where price =  $MC (= MR)$ . This occurs on this graph at point so that is the competitive equilibrium.  
equilibrium output:  $Q_2$

d) i) area of consumer surplus for monopoly:  
triangle  $AP_5B$

ii) area of consumer surplus for competitive:  
triangle  $AP_4C$

These are the regions where what the consumer is willing to pay (dictated by demand curve) exceeds the price (see ① i) ②) - where the consumer gets surplus.

e) Allocative efficiency exists when price equals marginal cost. When it exists, everyone who is willing to cover the cost of producing a good receives it. Therefore,

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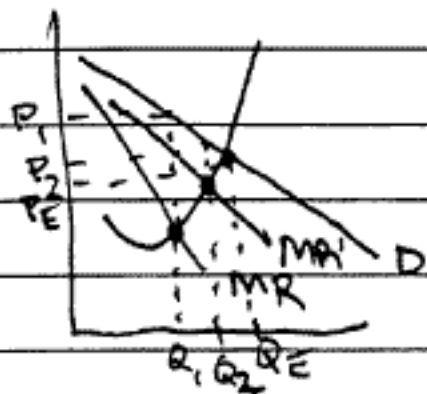
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1MIC X<sub>2</sub>

the economy receives exactly the goods it desires in just the right quantities. Also, because  $P=MC$ , the value by society of the good ( $P$ ) is the same as the value by society of ~~off~~ other goods ( $MC$ ).

f) The monopolist should produce  $Q_2$ , because here  $MC=P$ , the condition for allocative efficiency.

g) The government should use a per-unit subsidy to lead the monopolist to the level of allocative efficiency. The whole problem is that the monopolist is producing too little and ~~to~~ selling for too high a price. A subsidy would fix that - it would encourage the firm to produce more at a lower cost. Its effect graphically would be to increase the firm's MR curve:



The firm makes more revenue for each unit, so its MR curve shifts to  $MR'$ . This leads them to produce more ( $Q_1 \rightarrow Q_2$ ) at a lower price ( $P_1 \rightarrow P_2$ ). Although still not at allocative efficiency,

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1

1MIC X<sub>3</sub>

( $P_E \uparrow Q_E$ ), the firm has moved closer.

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IMICFF  
1

(a) - profit maximization  
is the  $P$  where  $MR = MC$   
- locate where  $MR = MC$   
and go up to demand = price

(b) (i) price =  $P_5$   
output =  $Q_1$

(ii) Monopolist wants to avoid the inelastic part of curve because he/she must lower price and produce more output for less revenue

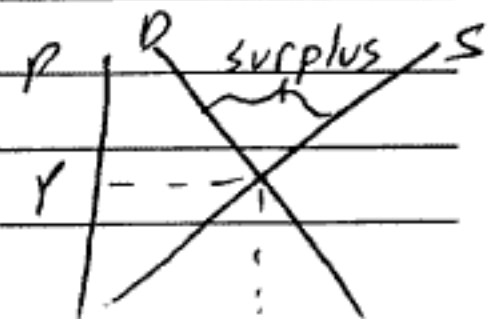
— line segment ~~is~~ from A to D is elastic where  $MR$  is negative the  $D$  curve is inelastic

(c) Eq. price and output are determined by  $MR = MC$  in a perf. comp. market

~~D = MR~~ in perf. comp. market ~~doesn't change~~ but not in a monopoly

(d) (i) consumer surplus exists where supply exceeds demand or ~~at~~ where  $MC$  is above  $D$

(ii) consumer surplus exist above ~~equilibrium~~ eg.  $P$  and  $Q$



(e) allocative efficiency occurs when a producer's resources are apportioned in the most desirable way for societal wants

it occurs where  $P = MC = D$

(f) output =  $Q_2$   
because  $MC = D = P$

(g) — a gov't per unit subsidy would be more effective because the monopoly would have to charge a lower price while increasing output ( $P_4, Q_2$ ) to be allocatively efficient

— if the gov't ensured  $P_5$  for every unit beyond  $Q_1$ , then the monopoly would find it profitable to meet societal needs <sup>what it normally is payed</sup>

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1M1C6G,  
1a - 1f

(a) Maximizing output is determined where  $MR = MC$  or  $Q_1$  in this case. Maximizing price is then found by following that quantity to the demand curve  $P_5$  in this case.

(b) (i) The profit maximizing point is  $p+B$  or  $Q, P_5$   
(ii) The curve is downsloping so all of it is elastic.

(c) In perfect competition the demand curve ~~is~~ ~~horizontal and~~ equals  $MR$ . The equilibrium that would prevail is  $MR = MC$  or  $p+C$ .

(d) (i) Consumer surplus for monopoly =  $P, P_5, B$   
(ii) Consumer surplus for perfect comp is nonexistent

(e) Allocative efficiency is when the producer supplies the product at the natural equilibrium thus consumers get what they want at the price they want.

(f) Natural equilibrium is  $MR = MC$  and thus  $Q_1$  would be allocatively efficient.

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1MICGG<sub>2</sub>

(g) The government should use a tax on the producers in order to raise his ATC. When the ATC rises to equilibrium, economic profit equals 0 and the firm would be efficient