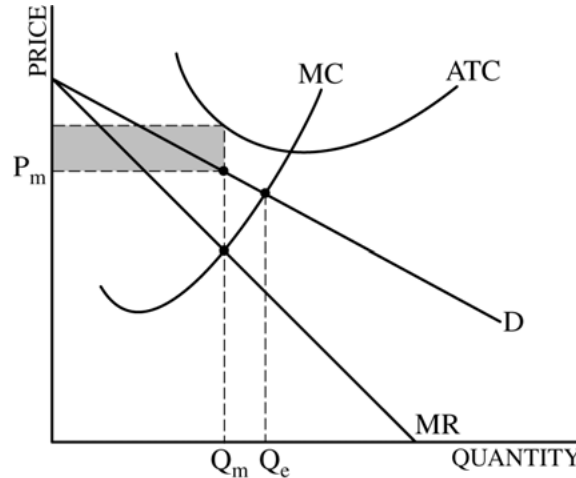


**AP[®] MICROECONOMICS
2012 SCORING GUIDELINES**

Question 1

10 points (5 + 1 + 2 + 2)

(a) 5 points:



(i) 3 points:

- One point is earned for a correctly labeled downward-sloping demand curve and a downward-sloping marginal revenue curve below the demand curve.
- One point is earned for identifying the profit-maximizing quantity, Q_m , at $MR = MC$.
- One point is earned for identifying price, P_m , above Q_m on the demand curve.

(ii) 1 point:

- One point is earned for shading the area of economic loss.

(iii) 1 point:

- One point is earned for identifying the allocatively efficient quantity, Q_e , at $MC = D$.

(b) 1 point:

- One point is earned for stating that the total revenue would decrease because the demand is price elastic in that range of the demand curve where $MR > 0$.

(c) 2 points:

- One point is earned for stating that the quantity will increase because the subsidy will cause the MC curve to shift downward and intersect the MR curve at a larger quantity.
- One point is earned for stating that the consumer surplus will increase.

(d) 2 points:

- One point is earned for stating that the deadweight loss will not change because the lump-sum subsidy does not change the profit-maximizing quantity.
- One point is earned for stating that economic losses will decrease.

MICROECONOMICS

Section II

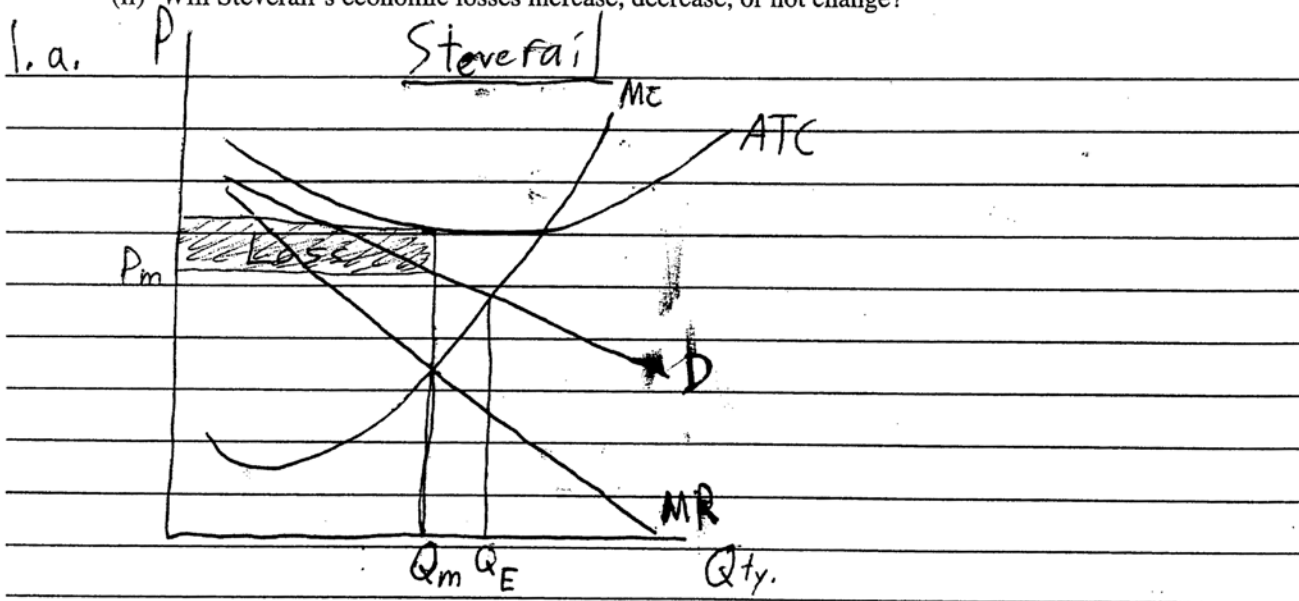
Planning time—10 minutes

Writing time—50 minutes

1 A
1 of 3

Directions: You have 10 minutes to read all of the questions in this booklet, to sketch graphs, to make notes, and to plan your answers. You will then have 50 minutes to answer all three of the following questions. It is suggested that you spend approximately half your time on the first question and divide the remaining time equally between the next two questions. In answering the questions, you should emphasize the line of reasoning that generated your results; it is not enough to list the results of your analysis. Include correctly labeled diagrams, if useful or required, in explaining your answers. A correctly labeled diagram must have all axes and curves clearly labeled and must show directional changes. Use a pen with black or dark blue ink.

1. Steverail, the only provider of train service operating between two cities, is currently incurring economic losses.
 - (a) Using a correctly labeled graph, show each of the following.
 - (i) Steverail's loss-minimizing price and quantity, labeled P_m and Q_m , respectively
 - (ii) The area of economic losses, shaded completely
 - (iii) The allocatively efficient quantity, labeled Q_e
 - (b) If Steverail raised the price above P_m identified in part (a)(i), would total revenue increase, decrease, or not change? Explain.
 - (c) Assume a per-unit subsidy is provided to Steverail.
 - (i) Will Steverail's quantity increase, decrease, or not change? Explain.
 - (ii) Will consumer surplus increase, decrease, or not change?
 - (d) Assume instead that a lump-sum subsidy is provided to Steverail. For the short run, answer the following.
 - (i) Will the deadweight loss increase, decrease, or not change? Explain.
 - (ii) Will Steverail's economic losses increase, decrease, or not change?

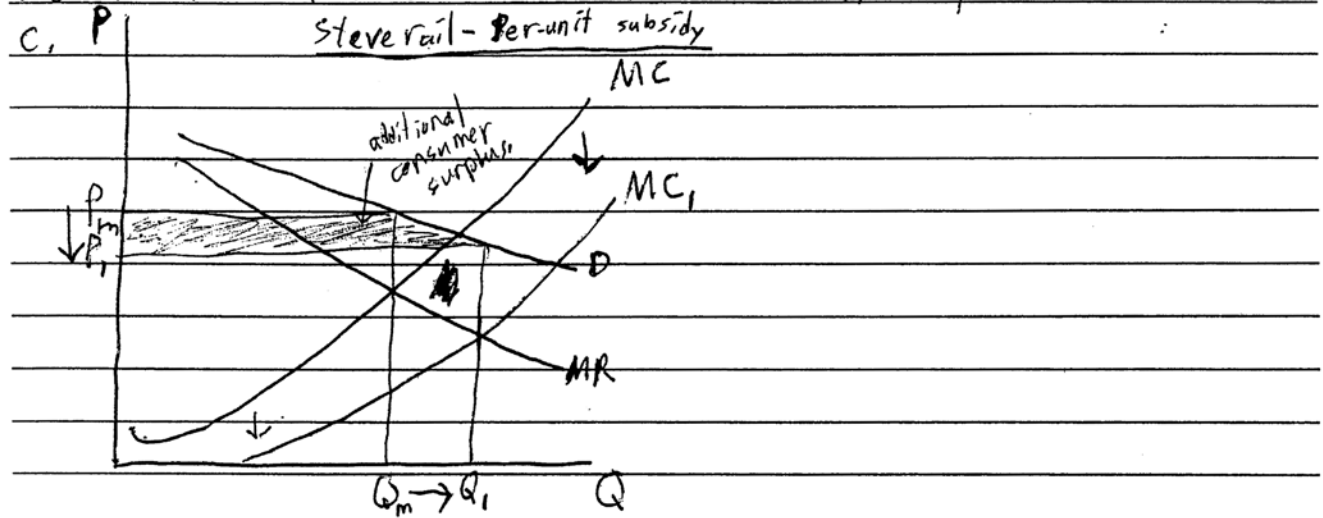


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Additional answer page for Question 1.

b. The MR for Steverail is positive at ~~the~~ Q_m , indicating that demand is elastic. Elasticity refers to the change in total revenue as price changes, and relatively elastic demand will cause a decrease in revenue if price is increased. Therefore, Steverail would see a decrease in total revenue if the price was increased.

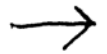


i. Due to a change in ~~the~~ subsidies acting as a determinant of supply, Steverail's MC curve will be moved to the ~~left~~ right as seen in the above graph. Quantity will be increased from Q_m to Q_1 , as shown.

ii. Consumer surplus is the amount consumers would have been willing to pay above market price. Since price decreases, fewer consumers are priced out of the market and consumer surplus grows by the amount shaded in the above graph.

d. i. A lump-sum subsidy functions as a damper to fixed costs, lowering ATC but not affecting MC. Because of this, quantity produced by Steverail will not change, meaning that the inefficiencies of the market causing deadweight loss between Q_m and Q_E will not change. Therefore, deadweight loss will also not change.

ii. Steverail's economic losses will decrease due to the lump-sum subsidy. This fixed payment will lower ATC at every quantity point, decreasing Steverail's costs at Q_m and thereby lessening



GO ON TO THE NEXT PAGE.

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MICROECONOMICS

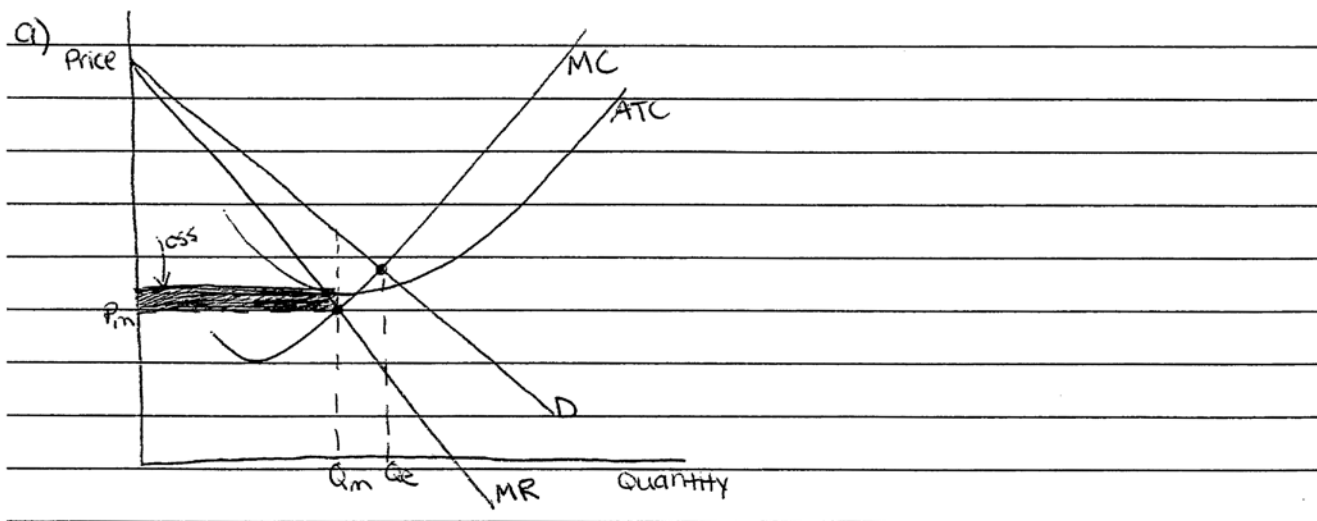
Section II

Planning time—10 minutes

Writing time—50 minutes

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Additional answer page for Question 1.

b) Total revenue would increase if Stewerail raised the price above P_m because he would begin to make a profit and gain money and revenue.

c) Stewerail's quantity would not change ~~if~~ when given a per-unit subsidy because it would cost the same to produce the product, although the price would decline for consumers.

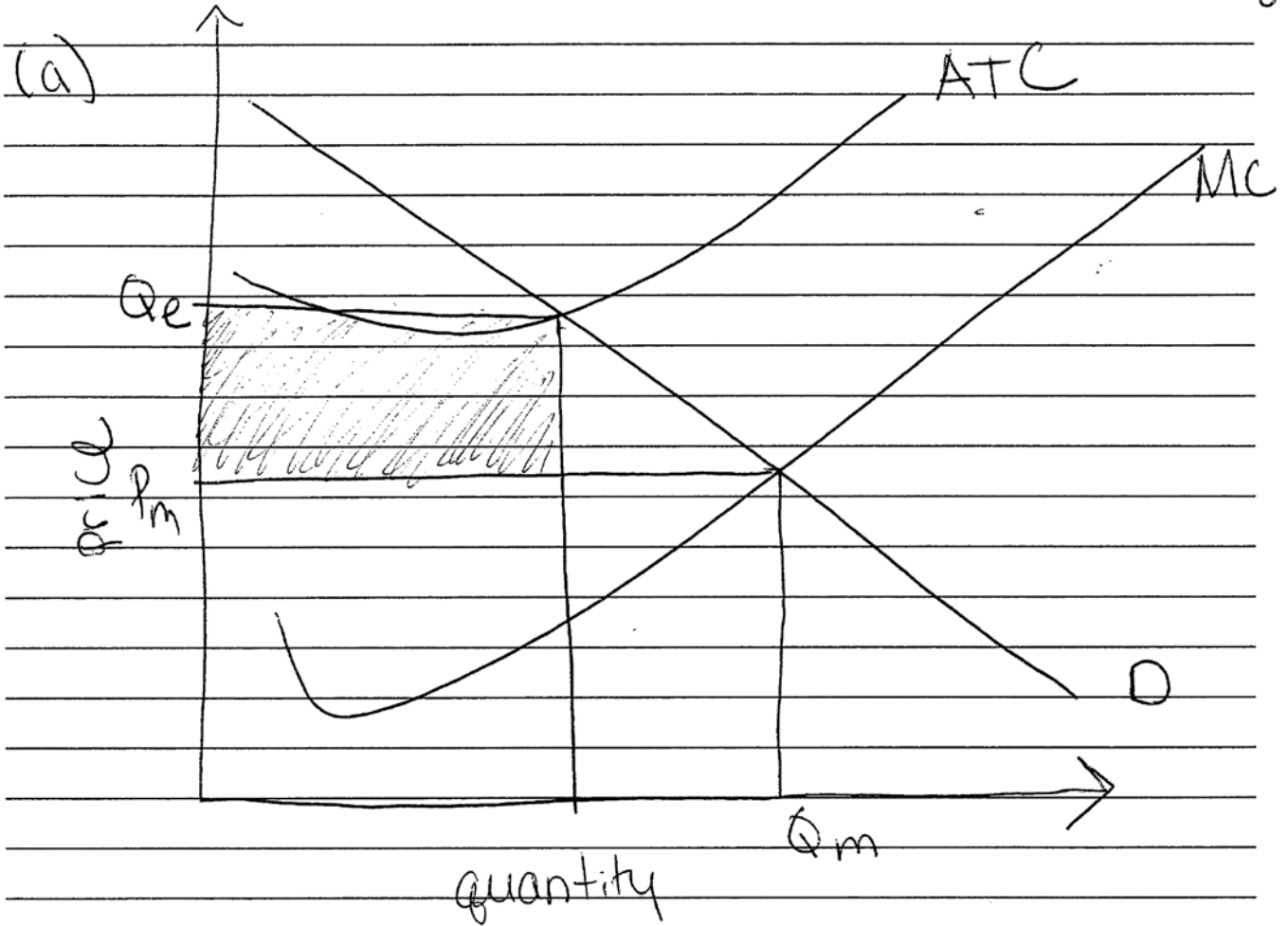
(ii) consumer surplus would increase with a subsidy because people would be ~~more~~ paying even less than they would if there were no subsidy.

d) ~~the~~ (i) The deadweight loss will increase with a lump-sum subsidy because price will be lower, creating more loss.

(ii) Stewerail's economic loss will decrease because he will be gaining the lump-sum subsidy. ~~to~~

GO ON TO THE NEXT PAGE.

Additional answer page for Question 1.



(b) Total revenue would increase because there would be less economic loss and the price and quantity would be closer to allocative efficiency.

(c) (i) The quantity will increase because the subsidy would rise as the units

rise.
(ii) Decrease

(d) The deadweight loss would decrease because the ~~quantity~~ ATC curve

GO ON TO THE NEXT PAGE.

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would come down.
(ii) Decrease

AP[®] MICROECONOMICS

2012 SCORING COMMENTARY

Question 1

Overview

This question assessed students' ability to work with the standard monopoly model. It tested for an understanding of how monopolists establish price and quantity, how losses are identified, and how the allocatively efficient quantity is determined. The question also assessed whether students knew the effect of a per-unit subsidy on quantity and consumer surplus, and the effect of a lump-sum subsidy on deadweight loss and economic losses.

Sample: 1A

Score: 10

The student answers all parts of the question correctly and so earned all 10 points.

Sample: 1B

Score: 6

In part (a)(i) the student earned 1 point for correctly drawing and labeling the demand and marginal revenue curves, and 1 point for correctly identifying the monopoly quantity at the intersection of marginal cost and marginal revenue. The student incorrectly identifies the monopoly price, however, and so did not earn this point. The student earned 1 point in part (a)(ii) for correctly showing the area representing economic losses at the monopoly output level. In part (a)(iii) the student earned 1 point for correctly identifying the allocatively efficient quantity, Q_e . The student earned 1 point in part (c)(ii) for stating that "consumer surplus would increase." In part (d)(ii) the student earned 1 point for stating that "economic loss will decrease."

Sample: 1C

Score: 2

The student earned 1 point in part (a)(i) for correctly identifying the monopoly price from the demand curve, given the monopoly quantity. The student fails to determine correctly the monopoly quantity at the intersection of MR and MC and did not earn this point. The student earned 1 point in part (d)(ii) for stating that economic losses would decrease.