



**AP[®] Microeconomics
2010 Free-Response Questions
Form B**

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2010 AP[®] MICROECONOMICS FREE-RESPONSE QUESTIONS (Form B)

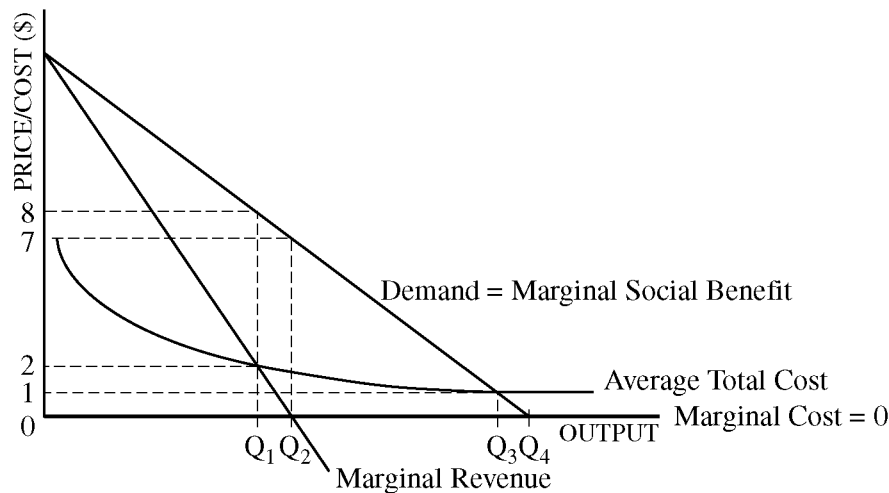
MICROECONOMICS

Section II

Planning time—10 minutes

Writing time—50 minutes

Directions: You 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. The diagram above shows the cost and revenue curves for a bridge to a popular island. The marginal cost of crossing the bridge is zero and is indicated in the diagram as the horizontal axis. The price is the toll to cross the bridge, and the output is the number of autos that cross the bridge each day.
 - (a) Assume that a private firm owns the bridge and maximizes profits. Based on the diagram, determine each of the following.
 - (i) Output
 - (ii) Price
 - (b) Now assume that a municipality owns the bridge and sets the price to achieve allocative efficiency. Based on the diagram, determine each of the following.
 - (i) Output
 - (ii) Price
 - (c) At a price of \$1, is the municipality's accounting profit positive, negative, or zero? Explain.
 - (d) Suppose that the municipality sets a break-even price that generates revenues to just cover all economic costs.
 - (i) Based on the diagram, determine the break-even output.
 - (ii) At the output you determined in part (d)(i), is the demand relatively elastic, relatively inelastic, unit elastic, perfectly elastic, or perfectly inelastic?

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- (e) If a company begins to provide access to the island via commercial watercraft, what will happen to each of the following in the diagram?
- (i) The demand curve for bridge crossings
 - (ii) The profit-maximizing output
- (f) Suppose the long-run average total cost is strictly downward sloping. Would it be efficient to build a second bridge? Explain.
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Number of Workers	Marginal Revenue Product per Day
1	\$450
2	\$500
3	\$450
4	\$400
5	\$300
6	\$100

2. The table above gives the short-run marginal revenue product of labor per day for a perfectly competitive firm. The firm is currently selling its product at the market price of \$5.
- (a) Calculate the marginal (physical) product of the third worker.
 - (b) Define the law of diminishing marginal returns and explain why it occurs.
 - (c) Diminishing marginal returns first occur with the hiring of which worker for the firm?
 - (d) What is the highest daily wage that the firm is willing to pay to hire the fifth worker?
 - (e) What will happen to the demand for labor if the market price of the product increases? Explain.

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3. (a) The table below gives the quantity of good X demanded and supplied at various prices.

Price (dollars)	Quantity Demanded (units)	Quantity Supplied (units)
30	1	3
20	3	3
10	4	3

- (i) Is the demand for good X relatively elastic, relatively inelastic, unit elastic, perfectly elastic, or perfectly inelastic when the price decreases from \$30 to \$20 ? Explain.
 - (ii) Is the supply of good X relatively elastic, relatively inelastic, unit elastic, perfectly elastic, or perfectly inelastic when the price decreases from \$30 to \$20 ? Explain.
 - (iii) If a per-unit tax is imposed on good X, how is the burden of the tax distributed between the buyers and sellers of good X?
- (b) Assume that the income elasticity of demand for good Y is -2 . Using a correctly labeled graph of the market for good Y, show the effect of a significant increase in income on the equilibrium price of good Y in the short run.

STOP

END OF EXAM