



AP[®] Microeconomics 1999 Scoring Guidelines

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AP[®] MICROECONOMICS
1999 SCORING GUIDELINES

Question 1

Correct Answer

Part (a) With fewer firms producing textiles, the supply of textiles is reduced; the supply curve shifts to the left (inward). With a higher price for textiles, the quantity supplied increases along an unchanged supply curve.

Part (b) The tariff raises the per unit supply price of all units of imported textiles; the supply curve in market B shifts to the left (inward), leading to a higher equilibrium price and a lower equilibrium quantity of imported textiles. Since imported and domestically produced textiles are close substitutes, the increase in the price of imported textiles leads to an increase in the demand for domestically produced textiles (market A). Both the equilibrium price and quantity increase in market A.

Part (c) A higher wage for textile workers leads to a reduced supply of domestically produced textiles. In market A, the supply curve shifts to the left (inward), and there is an increase in the equilibrium price and a reduction in the equilibrium quantity.

Part (d) The individual firm is a wage taker in the hiring of labor. Thus the firm faces a perfectly elastic (horizontal) labor supply, and the firm is able to hire all the labor it wishes at this wage rate. Given that the wage rate has increased, the firm's labor supply, while remaining perfectly elastic, shifts up to reflect the higher wage. The firm's labor demand, its marginal revenue product of labor curve, shifts out (increases) because the price of textiles increased (in part c). [While not required in the answer, the intersection of the firm's new labor supply and new labor demand should show a reduction in the quantity of labor employed by the firm. Given that all firms are collectively producing fewer textiles (part c), the representative firm will produce fewer textiles and employ fewer units of labor.]

Scoring Rubric

Part (a) = 2 points, Part (b) = 4 points, Part (c) = 1 point, Part (d) = 2 points; 9 Points in Total

Part (a)

- i. inward shift in supply; a decrease in supply (1 point)
- ii. movement along the supply curve; an increase in the quantity supplied or supply curve does not change (1 point)

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Question 1 (cont.)

Part (b)

- i. Import Market B:
shift inward (decrease) supply: need correct graph (1 point) leading to increased price and reduced quantity in market B (either in a correct graph **or** a verbal explanation) (1 point)
- ii. Domestic Market A:
shift out (increase) in demand: need correct graph + verbal linkage to the price increase in Import Market B in part (b-i) above (1 point) leading to increased price and increased quantity in market A (either in a correct graph **or** a verbal explanation) (1 point)

Part (c)

Supply shifts in (decreases): leading to a price increase and a decrease in quantity on a correctly labeled graph (1 point)

Part (d)

- Firm's labor hiring situation: NOT the market
- MRP_L shifts out due to an increase in the output price (1 point)
- Labor supply to the firm (must be perfectly elastic or horizontal) shifts up following the increase in the wage rate (1 point)

[Notes: 1. The firm's quantity of labor hired should fall since each firm is producing less output from Part (c). However, the two points may be awarded even if that conclusion (which is not asked for in the question) is not reached. 2. MRP may be labeled DL if the axes are properly labeled (wage on the vertical axis and employment, or quantity of labor, on the horizontal axis); the graph must clearly related to the firm's hiring of labor and not that of the labor market.]

Note: Besides counting points, the answer may be looked at as a whole and ultimately judged by its overall quality. The final total should mean something in terms of the overall quality of the answer. An 8 or 9 should reflect an excellent answer (a 9 is not necessarily a perfect answer); a 6 or 7, a good answer; a 4 or 5, an adequate answer; a 3 a seriously deficient answer, but still an answer; a 2 an answer signifying nothing except one sustained argument; and a 1, containing only a correct, relevant-to-the question statement. A 0 has no relevant economic answer to the question. A dash (-) is given for an unresponsive or blank answer.

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Question 1 (cont.)

Purpose of the Question and Commentary on Students' Responses

This long microeconomic question tests students' understanding of product markets and the firm's labor hiring decision. The first part of the question tests an understanding of the difference between a change in supply and a change in the quantity supplied. Many students failed to demonstrate their understanding of this fundamental difference. In part (b), students are asked to assess the impact of a

tariff on both the market for imported textiles and for domestically produced textiles. Part (c) asks for the impact of a wage increase for labor producing textiles within the United States. In part (d), the wage increase from part (c) and the resulting increase in the price of domestically produced textiles are needed to analyze the individual firm's hiring of textile workers. Very few students made the transition from the market analysis — Parts (a),(b), and (c) — to the firm analysis, Part (d). Frequently students provided a graph and explanation for the labor market, but not for the individual firm. Even fewer students realized that the firm was a wage taker that faced a supply of labor that was perfectly elastic at the wage rate. In this question the supply of labor to the firm, — while remaining perfectly elastic — shifts up, reflecting the higher wage rate. Given that the price of textiles has increased, the marginal revenue product of labor (the firm's labor demand curve) shifts out. [Note: the individual firm, producing less output, will employ less labor; the intersection of the new labor supply and the new labor demand should result in fewer workers hired.] Students, year after year, seem to have major difficulty with questions that use the marginal revenue product of labor concept or that relate to the hiring of inputs.

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Question 2

Correct Answer

Part (a) With equal amounts of resources and identical technologies, each country can produce the same maximum quantity of wheat. Thus, neither country has an absolute advantage in wheat production. Country B has the absolute advantage in cloth production because it can produce more than country A.

Part (b) For Country A the opportunity cost of a bushel of wheat is 1 yard of cloth; for Country B, the opportunity cost of a bushel of wheat is 3 yards of cloth. Since Country A has the lower opportunity cost for producing wheat, Country A has comparative advantage in wheat production. Alternatively, Country B has the comparative advantage in the production of cloth.

Part (c) Given that comparative advantage is the basis for trade, Country B will specialize in the production of cloth, exporting cloth and importing wheat.

Part (d) Country B will import wheat, exchanging 2 units of cloth for one unit of wheat. The country benefits from trade because if it produced wheat itself, a unit of wheat would be more expensive, costing 3 units of cloth.

Scoring Rubric

Part (a) = 1 Point, Part (b) = 2 Points, Part (c) = 1 Point, Part (d) = 1 Point; 5 Points in Total

Part (a)

Wheat: neither country has an absolute advantage, identical outputs (with the same resources)

Cloth: Country B, as it produces more output (with the same resources) (1 point)

Part (b)

Country A has comparative advantage in wheat; Country B in cloth (1 point)

Show opportunity costs: Country A gives up 1 cloth for 1 wheat; Country B gives up 3 cloth for 1 wheat; relatively more expensive for Country B to produce wheat (1 point)

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Question 2 (cont.)

Part (c)

Country B will import wheat because it has comparative advantage in cloth (and will specialize in cloth production, getting its wheat more cheaply via trade) Key point is comparative advantage (1 point)

[The student may also state that in Country B the opportunity cost of wheat is higher than in Country A; thus, Country B will import wheat.]

Part (d)

For country B, via trade a unit of wheat only costs 2 units of cloth, while by domestic production a unit of wheat would cost 3 units of cloth. Also the student may explain that trade increases B's consumption possibilities by making it possible to consume more of both goods (1 point)

Note: Besides counting points, the answer may be looked at as a whole and ultimately judged by its overall quality. The final total should mean something in terms of the overall quality of the answer. A 5 should reflect an excellent answer, but not necessarily a perfect one; a 4, an excellent answer with a flaw; a 3, a good answer; a 2, an adequate answer; a 1, a seriously deficient answer, but still an answer. A 0 has no relevant economic answer to the question. A dash (-) is given for an unresponsive or blank answer.

Purpose of the Question and Commentary on Students' Responses

This question relates to absolute advantage, comparative advantage, opportunity cost, and the gains from trade. Students tended to have an understanding of the concepts of absolute and comparative advantage. Often, however, explanations concerning opportunity cost were lacking. Frequently students did not clearly state that the opportunity cost of producing a unit of wheat in Country A (1 unit of cloth) was less than the opportunity cost of producing a unit of wheat in Country B (3 units of cloth); and that this differential resulted in A having comparative advantage in wheat and B having a comparative advantage in cloth. Students also did not demonstrate a good understanding of the gains from trade: either acquiring a product at lower cost through trade than through domestic production or enjoying increased consumption of both goods (consuming beyond the production possibilities curve).

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Question 3

Correct Answer

Part (a) The competitive firm is a price taker and faces a horizontal demand curve at the market price. The marginal revenue curve is also horizontal at the market price, coinciding with the demand curve. The monopoly firm faces the downward sloping market (or industry) demand curve. The marginal revenue curve is below the demand curve. [For a linear demand curve, the slope of the marginal revenue curve is twice that of the demand curve.]

Part (b) For the competitive firm, marginal revenue equals demand. The competitive firm sells each unit of output at a constant price. Thus, the additional revenue associated with an additional unit of output (or marginal revenue) is equal to the market price.

Part (c) For the monopoly firm, marginal revenue is less than price. Unlike the perfectly competitive firm, the monopolist is a price setter. For the monopoly firm to sell an additional unit of output, the firm must lower price on all units of output. Thus, the extra revenue received from selling an additional unit of output is offset by the selling of other units at a lower price.

Scoring Rubric

Part (a) = 2 points, Part (b) = 1 point, Part (c) = 2 points; 5 Points in Total

Part (a)

Correct graph showing the relationship between demand and marginal revenue for the competitive firm. (1 point)

Correct graph showing the relationship between demand and marginal revenue for the monopoly firm. (1 point)

Part (b)

D=MR:the firm is a price taker and can sell all output at the market price
(1 point)

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Question 3 (cont.)

Part (c)

D (or P) > MR

Explaining that the monopoly has control over price (1 Point)

Indicating that to sell additional units, price must be lowered on all units
(1 Point)

Note: Besides counting points, the answer may be looked at as a whole and ultimately judged by its overall quality. The final total should mean something in terms of the overall quality of the answer. A 5 should reflect an excellent answer, but not necessarily a perfect one; a 4, an excellent answer with a flaw; a 3, a good answer; a 2, an adequate answer; a 1, a seriously deficient answer, but still an answer. A 0 has no relevant economic answer to the question. A dash (-) is given for an unresponsive or blank answer.

Purpose of the Question and Commentary on Students' Responses

Using both a competitive firm and a monopoly firm, this question tests students' understanding of demand and marginal revenue. Many students failed to see that the competitive firm is a price taker and has a perfectly elastic (horizontal) demand for its output. As a result, the firm's marginal revenue is also perfectly elastic, is equal to price, and coincides with the firm's demand curve. All AP Microeconomics courses should clearly explain the differences between a firm that is a price taker (competitive firm) and a price setter (monopolist).