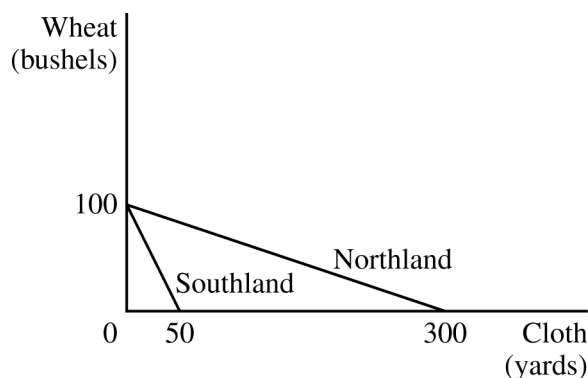


1. RKB is a profit-maximizing monopoly that produces a new, patented electronic device. RKB is earning positive economic profit.
- (a) Draw a correctly labeled graph for RKB, and show each of the following.
- (i) The profit-maximizing quantity, labeled  $Q_M$
  - (ii) The profit-maximizing price, labeled  $P_M$
  - (iii) The average total cost curve consistent with RKB earning positive economic profit
  - (iv) The area representing the deadweight loss, shaded completely
- (b) The government wants RKB to produce the allocatively efficient quantity. Would the government impose a binding price ceiling, a binding price floor, a per-unit tax, or a lump-sum tax?
- (c) Suppose that the government does not impose the policy you identified in part (b). Consumers now become aware of research that confirms the use of this new device harms users' vision. Given widespread consumer awareness of this research, what will happen to RKB's profit-maximizing quantity in the short run? Explain.
- (d) Assume that RKB hires workers in a perfectly competitive labor market.
- (i) Draw a correctly labeled graph for the labor market, showing the equilibrium wage and quantity of labor, labeled  $W_E$  and  $Q_E$ , respectively.
  - (ii) Suppose immigration increases the number of workers in this labor market. On your graph in part (d)(i), show the new equilibrium wage and quantity of labor, labeled  $W_2$  and  $Q_2$ , respectively.
  - (iii) RKB uses the optimal combination of capital and labor in its production process. The firm rents capital at \$500 per unit, and the last unit of capital rented has a marginal product of 2,500 units. If the marginal product of the last unit of labor hired is 1,000 units, calculate the wage rate. Show your work.

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**Begin your response to this question at the top of a new page in the separate Free Response booklet and fill in the appropriate circle at the top of each page to indicate the question number.**

2. The graph shows the production possibilities curves for Northland and Southland.



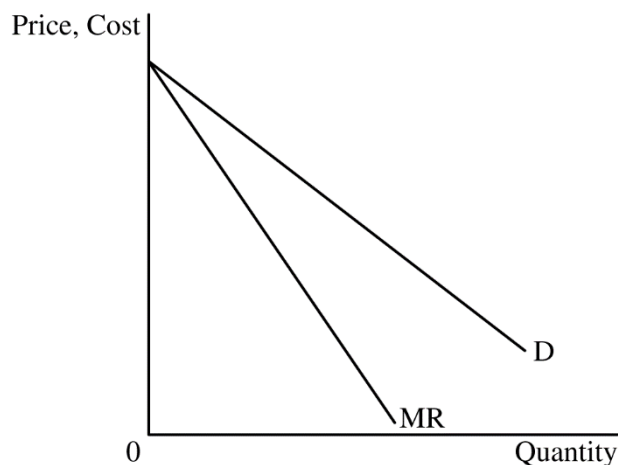
- (a) Which country has a comparative advantage in producing wheat? Explain using numbers.
- (b) Identify a specific number of yards of cloth that could be traded for 10 bushels of wheat and would be mutually beneficial to Northland and Southland.
- (c) Southland's maximum possible output of wheat falls from 100 bushels to 75 bushels. Assuming no other changes, will Southland have a comparative advantage in producing cloth? Explain using numbers.
- (d) Turnips are produced in a perfectly competitive market in Alderia, a third country, which does not engage in international trade. Runoff from turnip fields pollutes Alderia's rivers, hurting its residents.
- Does the turnip market equilibrium result in an efficient allocation of resources? Explain using marginal analysis.
  - In an effort to reduce pollution, Alderia's government imposes a lump-sum tax on turnip production. What will be the impact on the turnip market equilibrium price and quantity in the short run?

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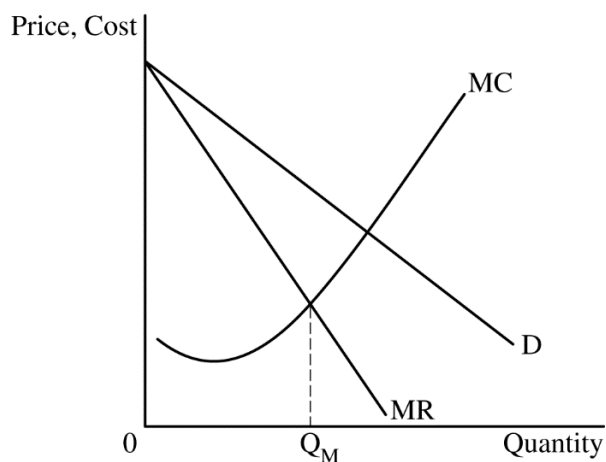
**Begin your response to this question at the top of a new page in the separate Free Response booklet and fill in the appropriate circle at the top of each page to indicate the question number.**

**Question 1: Long****10 points**

- (a) Draw a correctly labeled graph of a monopoly with a downward-sloping demand (D) curve and a downward-sloping marginal revenue (MR) curve with the MR curve below the D curve. **1 point**

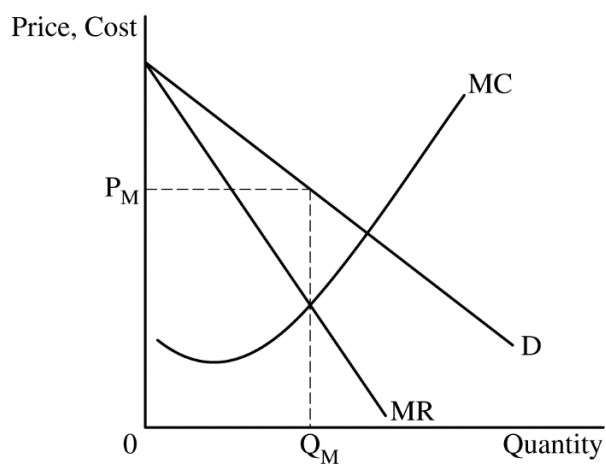


- For the second point, the graph must show a marginal cost (MC) curve and the profit-maximizing quantity, labeled  $Q_M$ , where  $MR = MC$ . **1 point**



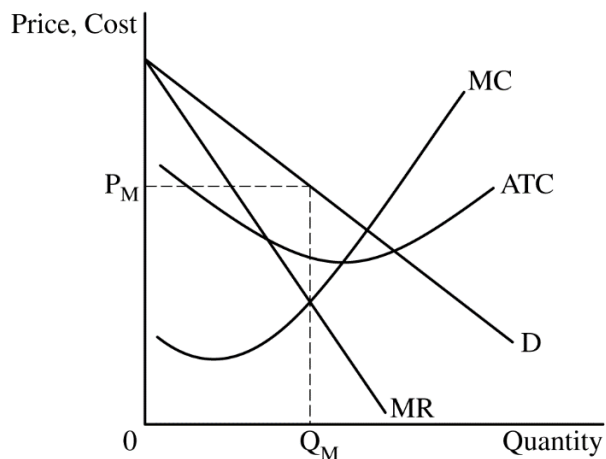
For the third point, the graph must show the profit-maximizing price, labeled  $P_M$ , from the demand curve at  $Q_M$ .

**1 point**



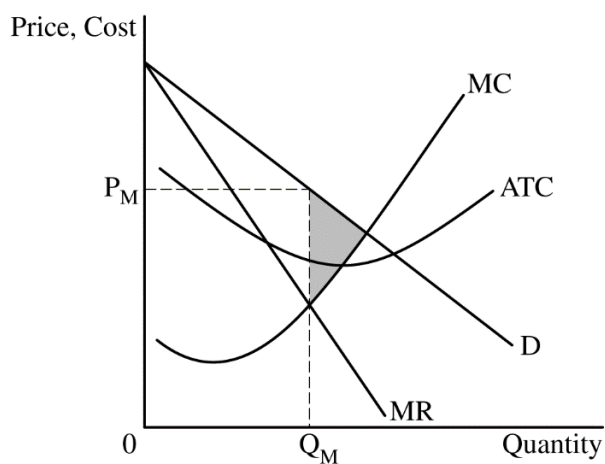
For the fourth point, the graph must show the average total cost (ATC) curve below  $P_M$  at  $Q_M$  and the MC curve passing through the minimum point of the ATC curve.

**1 point**



For the fifth point, the graph must show the area of the deadweight loss, shaded completely.

**1 point**



**Total for part (a)**

**5 points**

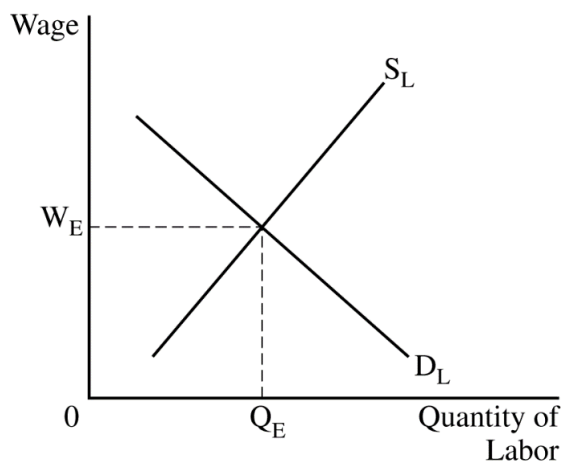
**(b)** State that the government would impose a binding price ceiling.

**1 point**

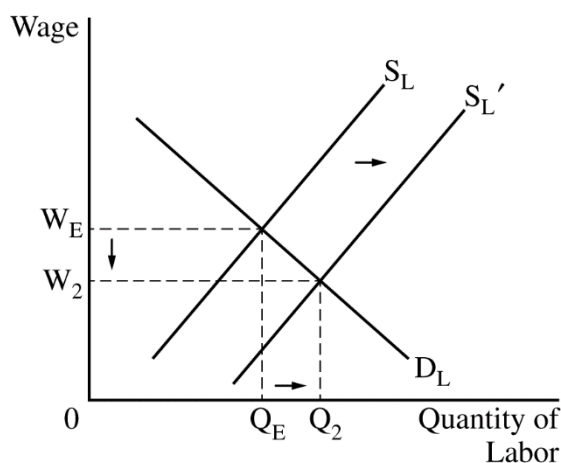
**(c)** State that the profit-maximizing quantity will decrease and explain that the demand for the device will decrease, causing the MR curve to shift to the left, intersecting the MC curve at a lower quantity.

**1 point**

- (d)(i)** Draw a correctly labeled graph of a perfectly competitive labor market with a downward-sloping demand (D) curve and an upward-sloping supply (S) curve and show the equilibrium wage and quantity of labor, labeled  $W_E$  and  $Q_E$ , respectively.

**1 point**

- (d)(ii)** The graph from part (d)(i) must show a rightward shift in the labor supply curve, resulting in a lower equilibrium wage rate, labeled  $W_2$ , and a higher equilibrium quantity of labor, labeled  $Q_2$ .

**1 point**

- (d)(iii)** Calculate the wage rate as \$200 and show your work.

**1 point**

$$\frac{\text{Marginal Product of Capital}}{\text{Rental Price}} = \frac{\text{Marginal Product of Labor}}{\text{Wage Rate}}$$

$$\frac{2,500}{\$500} = \frac{1,000}{\text{Wage Rate}}$$

$$\text{Wage Rate} = \$200$$

**Total for part (d) 3 points****Total for question 1 10 points**