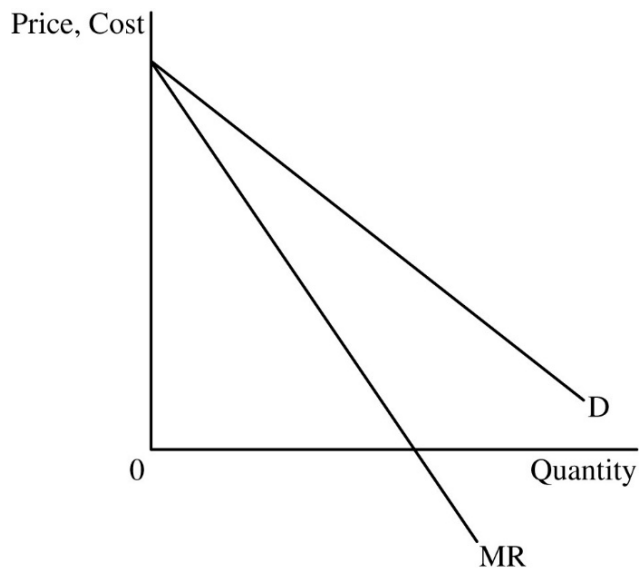
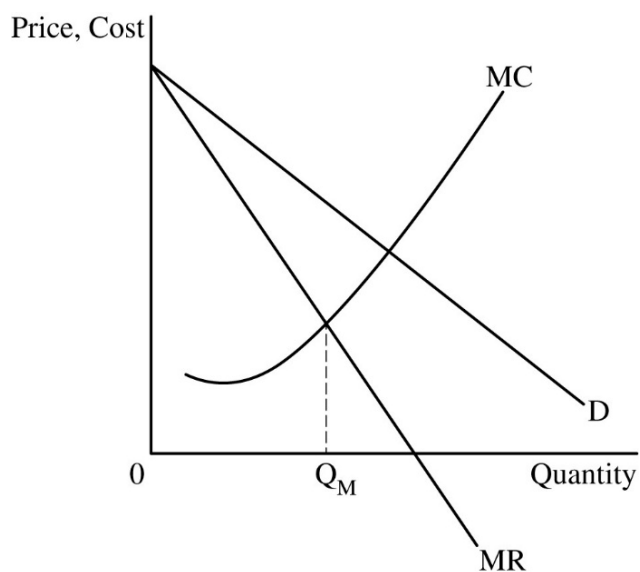


Question 1: Long**10 points**

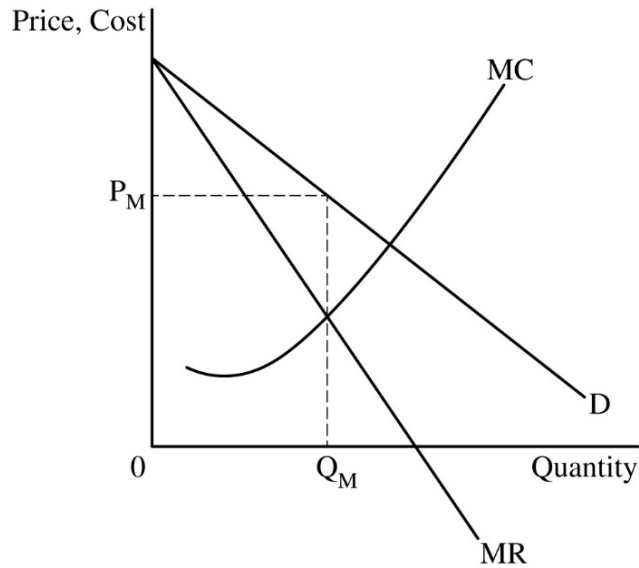
- A** Draw a correctly labeled graph for Voda Reservoir with a downward-sloping demand (D) curve and a downward-sloping marginal revenue (MR) curve with the MR curve below the D curve. **1 point**
- Point 1



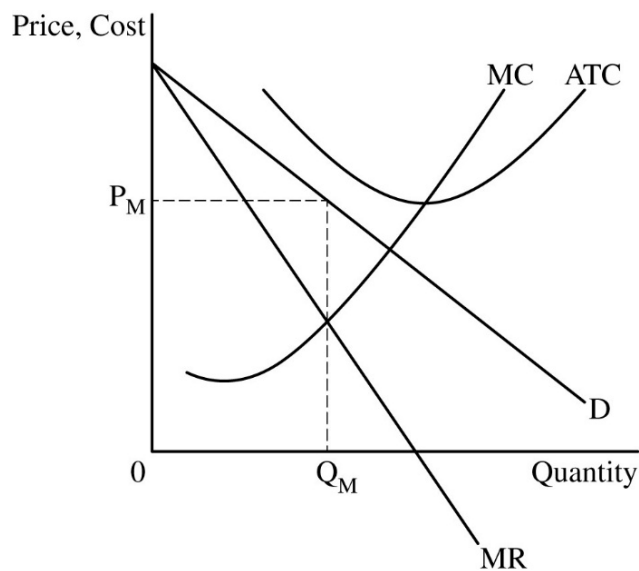
- Point 2 The graph must show a rising marginal cost (MC) curve and the profit-maximizing quantity, labeled Q_M , where $MR = MC$. **1 point**



- Point 3 The graph must show the profit-maximizing price, labeled P_M , from the D curve at Q_M . **1 point**

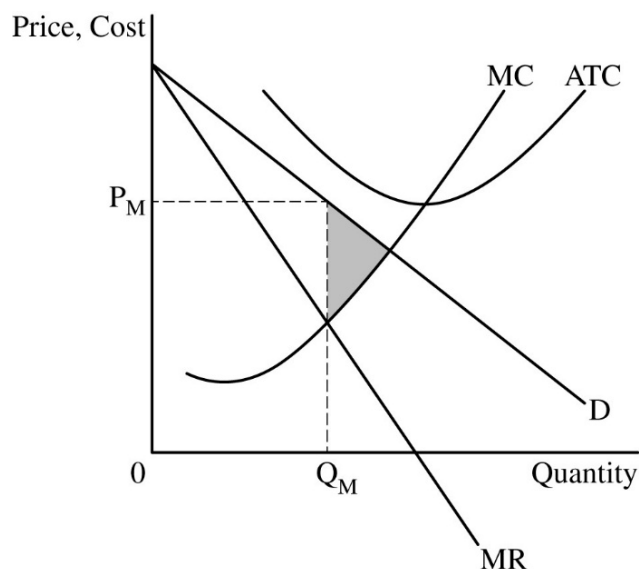


- Point 4 The graph must show the average total cost (ATC) curve above the D curve and show the MC curve passing through the minimum point of the ATC curve. **1 point**



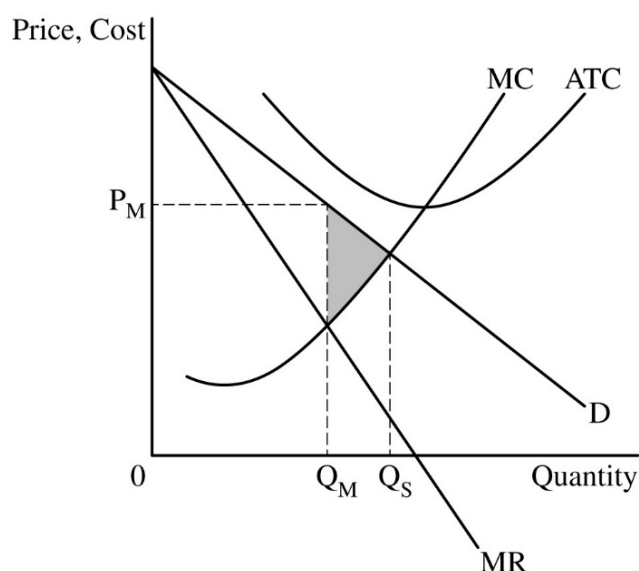
Point 5 The graph must show the area of deadweight loss, shaded completely.

1 point



B The graph from part A must show the socially optimal quantity of bottled water, labeled Q_S , from the intersection of the D and MC curves.

1 point



C State that Voda Reservoir's profit-maximizing quantity of bottled water will increase and explain with **ONE** of the following:

1 point

Point 7

- The per-unit subsidy decreases the firm's marginal cost, which shifts the MC curve to the right (down), intersecting the MR curve at a greater quantity.
- The per-unit subsidy increases the firm's marginal revenue, which shifts the MR curve to the right, intersecting the MC curve at a greater quantity.

D State that the demand for Voda Reservoir's bottled water will become more elastic.

1 point

Point 8

E	(i)	State that Voda Reservoir's demand for labor will increase and explain that the increase in demand for bottled water will increase the price and marginal revenue of bottled water, increasing the marginal revenue product of labor.	1 point
	(ii)	State that the market wage will increase in the short run and explain that the new regulation will decrease the supply of workers.	1 point

Question 2: Short**5 points**

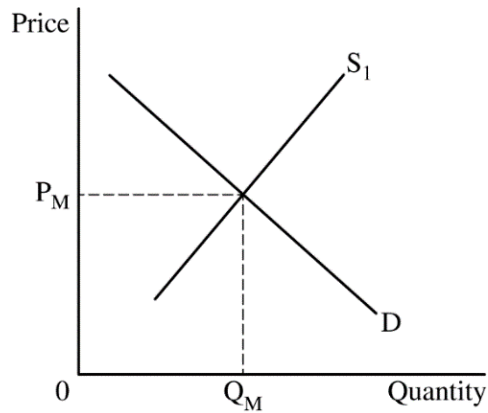
A	Calculate the total economic surplus as \$270 and show your work.	1 point
Point 1	$\text{Total Economic Surplus} = \frac{1}{2} \times (\$10 - \$1) \times (60 - 0) = \frac{1}{2} \times \$9 \times 60 = \$270$ OR $\begin{aligned} \text{Total Economic Surplus} &= \text{Consumer Surplus} + \text{Producer Surplus} \\ &= \frac{1}{2} \times (\$10 - \$4) \times (60 - 0) + \frac{1}{2} \times (\$4 - \$1) \times (60 - 0) \\ &= \$180 + \$90 = \$270 \end{aligned}$	
B	State that there will be neither a surplus nor a shortage and explain that a price floor set below the equilibrium price is not binding and, therefore, will have no effect on the market price and quantity.	1 point
C	(i) State that Rushland will export rice and explain with ONE of the following:	1 point
Point 3	- At the world price of \$5, the domestic quantity supplied is 80 bushels of rice, which is greater than the domestic quantity demanded, which is 50 bushels of rice. - At the world price of \$5, Rushland has a domestic surplus of 30 bushels of rice that can be exported.	
	(ii) Calculate the domestic consumer surplus in Rushland as \$125 and show your work.	1 point
Point 4	$\text{Domestic Consumer Surplus} = \frac{1}{2} \times (\$10 - \$5) \times (50 - 0) = \frac{1}{2} \times \$5 \times 50 = \$125$	
	(iii) Calculate the total revenue Rushland's farmers will earn as \$400 and show your work.	1 point
Point 5	$\text{Total Revenue} = \text{World Price} \times \text{Quantity Sold} = \$5 \times 80 = \$400$	

Question 3: Short**5 points**

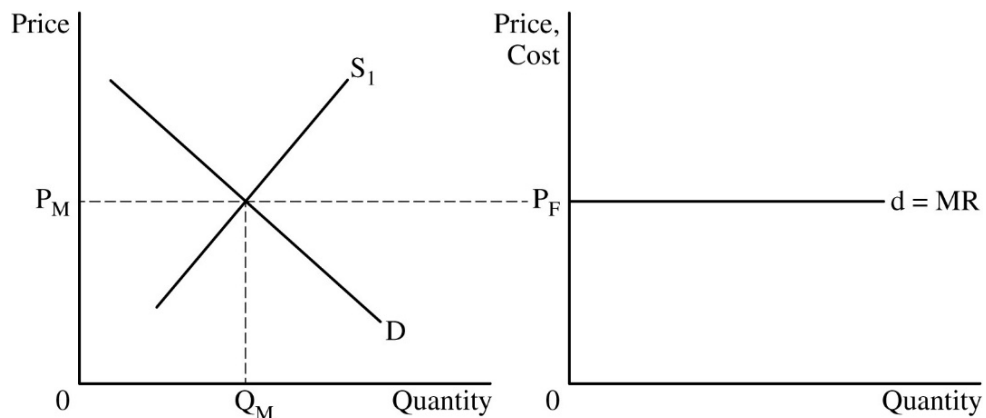
A Point 1	State “No,” producing Unique jewelry is not the best choice for Tony’s Trinkets if Bitaly’s Bracelets chooses to produce Silver jewelry and explain that Tony’s Trinkets’ profit from producing Typical jewelry is \$21, which is greater than its profit when producing Unique jewelry, which is \$20.	1 point
B Point 2	State that Bitaly’s Bracelets does not have a dominant strategy and explain that when Tony’s Trinkets chooses Unique, Bitaly’s Bracelets’ profit is higher when it chooses Gold, $\$21 > \19 , and when Tony’s Trinkets chooses Typical, Bitaly’s Bracelets’ profit is higher when it chooses Silver, $\$16 > \7 .	1 point
C Point 3	Identify the TWO Nash equilibria for the game as the following: • Tony’s Trinkets chooses Unique, and Bitaly’s Bracelets chooses Gold. • Tony’s Trinkets chooses Typical, and Bitaly’s Bracelets chooses Silver.	1 point
D Point 4	State that the minimum amount is \$6.	1 point
E Point 5	Calculate the new firm’s maximum combined profit as \$39 and show your work. Maximum Combined Profit = $\$20 + \$19 = \$39$	1 point

Question 1: Long**10 points**

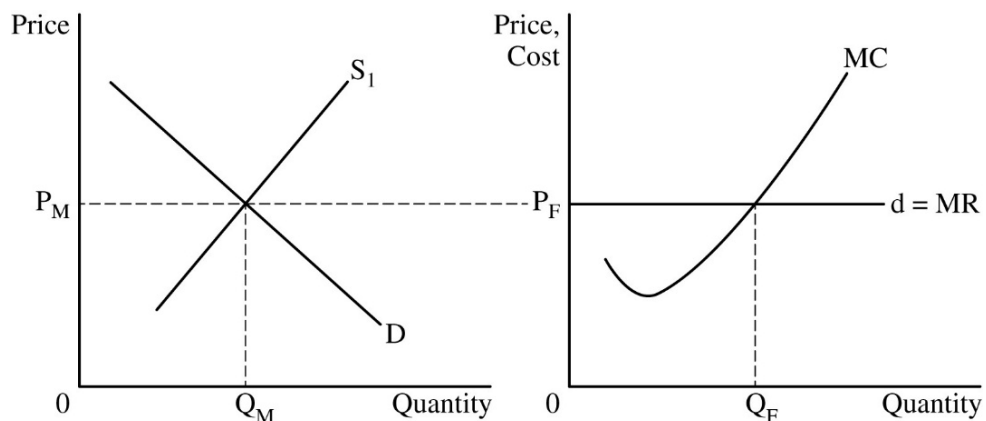
- A** Draw a correctly labeled graph of the market for wooden desks with a downward-sloping demand (D) curve and an upward-sloping supply (S_1) curve and label the market equilibrium price as P_M and the market equilibrium quantity as Q_M . **1 point**
- Point 1



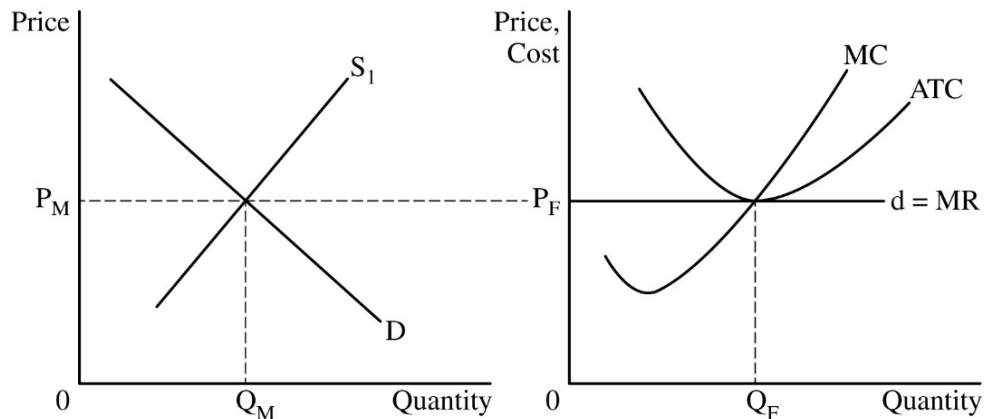
- Point 2 Draw a correctly labeled graph for Deskward that shows the firm's horizontal demand and marginal revenue ($d = MR$) curve extended from the market equilibrium price (P_M) and label the firm's price as P_F . **1 point**



- Point 3 The firm's graph must show a rising marginal cost (MC) curve, and show the firm's profit-maximizing quantity, labeled Q_F , where $MR = MC$. **1 point**

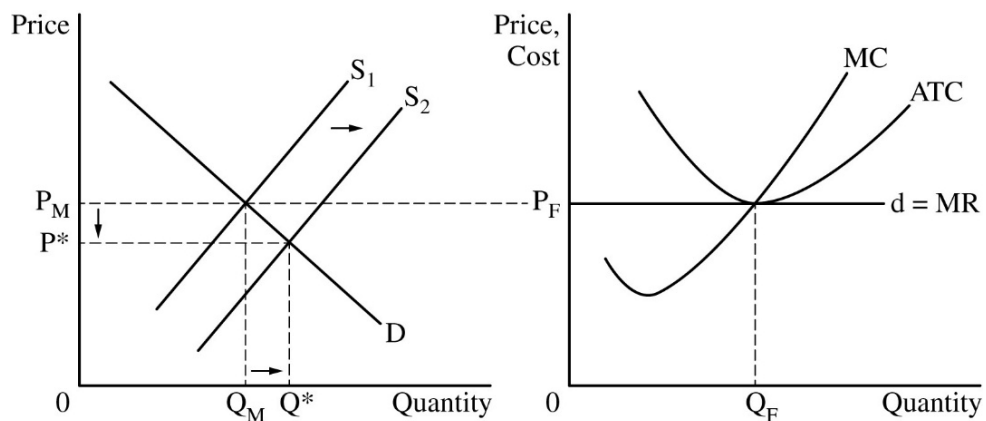


- Point 4 The firm's graph must show the average total cost (ATC) curve tangent to the firm's $d = MR$ curve at Q_F and show the MC curve passing through the minimum point of the ATC curve. **1 point**

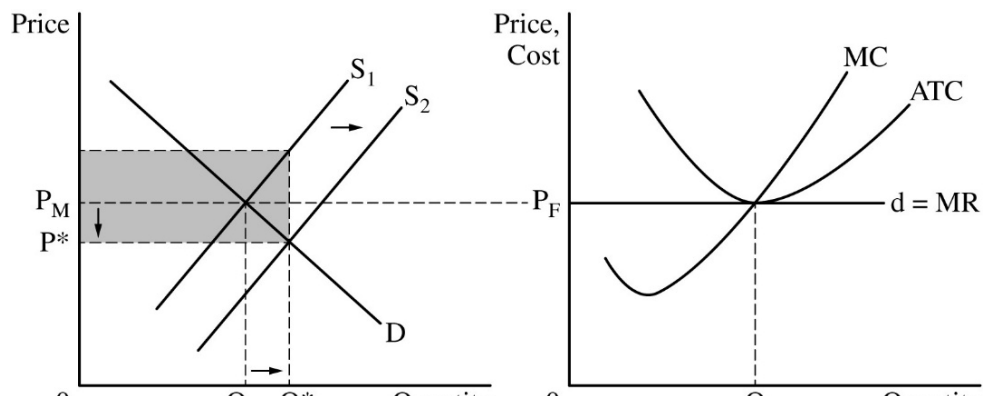


- B** State that Deskward's profit-maximizing quantity will not change in the short run and explain that a change in a fixed cost does not affect the firm's marginal cost or marginal revenue. **1 point**
- Point 5

- C (i)** The market graph from part A must show a rightward shift of the market supply curve and show the new market equilibrium price of wooden desks, labeled P^* , and the new market equilibrium quantity of wooden desks, labeled Q^* . **1 point**
- Point 6



- (ii)** The market graph from part A must show the area representing the total cost of the subsidy to the government, shaded completely. **1 point**
- Point 7



D Point 8	State that the price floor will result in a surplus of wooden desks and explain that the binding price floor is set above the market equilibrium price, which causes the quantity supplied of wooden desks to be greater than the quantity demanded of wooden desks.	1 point
E Point 9	(i) Calculate the long-run average total cost (LRATC) as \$160 per chair and show your work. LRATC at 500 chairs = $\frac{\$80,000}{500} = \160	1 point
(ii) Point 10	State that Deskward is experiencing diseconomies of scale and explain that as output increases from 500 to 600 chairs, its LRATC increases from \$160 to \$180 (= \$108,000/600) per chair.	1 point

Question 3: Short**5 points**

A Point 1	State that Lucy will maximize her total utility by consuming 5 units of Good X and 4 units of Good Y.	1 point
B Point 2	Calculate Lucy's total utility of consuming 2 units of Good X and 2 units of Good Y as 88 utils and show your work. Total Utility from consuming 2 units of Good X = 20 utils + 16 utils = 36 utils Total Utility from consuming 2 units of Good Y = 28 utils + 24 utils = 52 utils Total Utility from consuming 2 units of Good X and 2 units of Good Y = 36 utils + 52 utils = 88 utils	1 point
C Point 3	(i) State that Lucy can purchase a maximum of 4 units of Good Y.	1 point
(ii) Point 4	State that Lucy's optimal consumption is 4 units of Good X and 3 units of Good Y and explain that at this combination, the marginal utility per dollar spent on the last unit of Good X is 4 utils/\$ (= 8 utils/\$2), and the marginal utility per dollar spent on the last unit of Good Y is 4 utils/\$ (= 16 utils/\$4) when Lucy spends her entire budget of \$20 (= \$2 × 4 units of Good X + \$4 × 3 units of Good Y).	1 point
D Point 5	State that goods X and Y are substitute goods and explain that the cross-price elasticity of demand between Good X and Good Y is positive. A positive cross-price elasticity indicates that an increase (a decrease) in the price of Good X will increase (decrease) the demand; therefore, the quantity demanded of a substitute good, Good Y.	1 point

Question 2: Short**5 points**

- | | | |
|--------|---|---------|
| (a) | State that Southland has a comparative advantage in producing wheat and explain that the opportunity cost of producing one bushel of wheat in Southland is 1/2 yard of cloth, which is less than the opportunity cost of producing one bushel of wheat in Northland, which is 3 yards of cloth. | 1 point |
| (b) | Identify any specific number between 5 and 30 yards of cloth. | 1 point |
| (c) | State no and explain that Southland's opportunity cost to produce one yard of cloth is 1.5 bushels of wheat, which is greater than Northland's opportunity cost of producing cloth, which is 1/3 of a bushel of wheat. | 1 point |
| (d)(i) | State no, the market results in an inefficient allocation of resources and explain with ONE of the following: <ul style="list-style-type: none"> The negative externality causes the marginal social cost to be greater than the marginal social benefit ($MSC > MSB$) at the market equilibrium. The negative externality in production causes the marginal social cost to be greater than the marginal private cost ($MSC > MPC$) at the market equilibrium. | 1 point |
| (ii) | State that a lump-sum tax will not change the market equilibrium price and quantity in the short run. | 1 point |

Total for part (d)	2 points
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Total for question 2	5 points
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