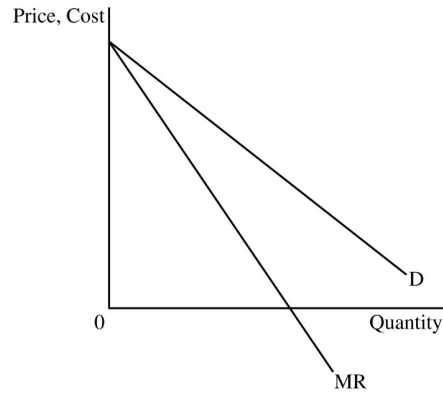
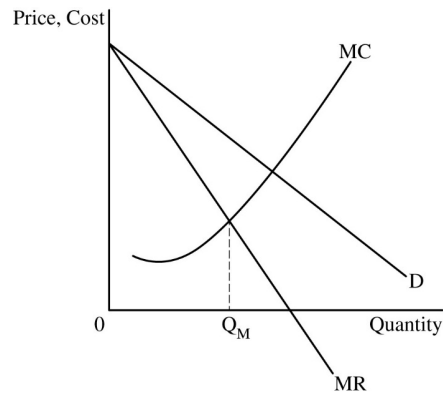


Question 1: Long**10 points**

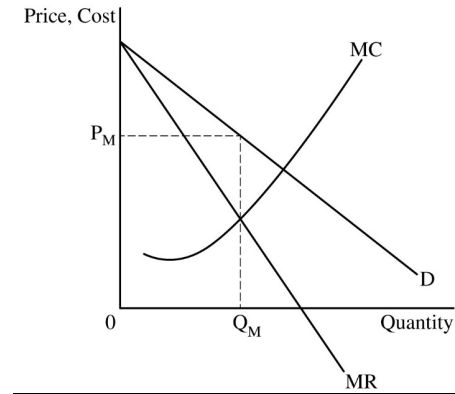
- A** Draw a correctly labeled graph for Voda Reservoir with a downward-sloping demand (D) curve and a downward-sloping marginal revenue (MR) curve with the MR curve below the D curve. **1 point**
- Point 1



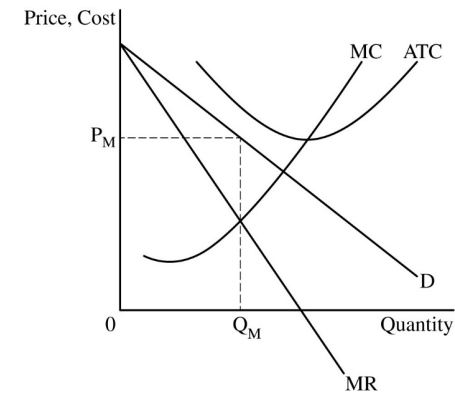
- Point 2 The graph must show a rising marginal cost (MC) curve and the profit-maximizing quantity, labeled Q_M , where $MR = MC$. **1 point**



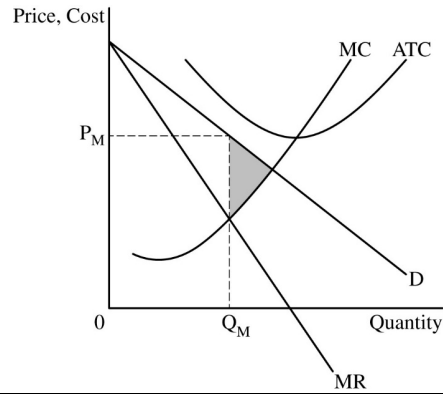
- Point 3 The graph must show the profit-maximizing price, labeled P_M , from the D curve at Q_M . **1 point**



- 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**

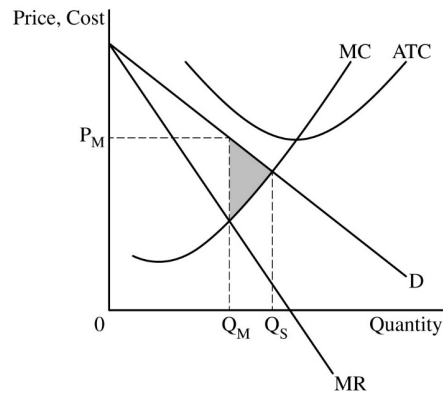


Point 5 The graph must show the area of deadweight loss, shaded completely. **1 point**



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**

Point 6



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 **1 point**

Point 9

increase in demand for bottled water will increase the price and marginal revenue of bottled water, increasing the marginal revenue product of labor.

(ii) State that the market wage will increase in the short run and explain that the new **1 point**

Point 10

regulation will decrease the supply of workers.

Question 2: Short

5 points

A State that the profit-maximizing number of miners is 4. **1 point**

Point 1

B State that Quartz Excavations will pay a wage rate that is less than \$15 and explain **1 point**

Point 2

that the wage rate paid by a monopsonist is determined by the supply of labor at the quantity of labor hired. Thus, the wage rate associated with the hiring of 4 miners is \$10.

C Calculate the total wage bill as \$50 and show your work. **1 point**

Point 3

Total Wage Bill = $\$25 \times 2 = \50

D (i) State that the marginal revenue product of miners will increase and explain that the **1 point**

Point 4

increase in demand for quartz will increase the price and marginal revenue of quartz.

(ii) State that the marginal factor cost of the last miner hired will be greater than the **1 point**

Point 5

marginal factor cost of the last miner hired before the increase in the demand for quartz.

Question 2: Short**5 points**

- (a) Calculate the average fixed cost of \$3 and show the work. **1 point**

$$\text{Average Fixed Cost} = \frac{\text{Total Fixed Cost}}{\text{Quantity of Output}}$$

$$\text{Average Fixed Cost} = \frac{\$90}{30} = \$3$$

- (b) Calculate the marginal cost as \$6 and show the work. **1 point**

$$\text{Marginal Cost} = \frac{\text{Change in Total Variable Cost}}{\text{Change in Output}}$$

$$\text{Marginal Cost} = \frac{(\$108 - \$90)}{(30 - 27)} = \frac{\$18}{3} = \$6$$

OR

$$\text{Marginal Cost} = \frac{\text{Change in Total Cost}}{\text{Change in Output}}$$

$$\text{Marginal Cost} = \frac{(\$198 - \$180)}{(30 - 27)} = \frac{\$18}{3} = \$6$$

- (c) State that diminishing marginal returns to labor begin with the hiring of the 3rd worker and explain that the marginal product of the 1st worker is 5 bags, the marginal product of the 2nd worker increases to 7 bags, and the marginal product of the 3rd worker decreases to 6 bags. **1 point**

- (d) State that the profit-maximizing number of workers is 7 and explain that the marginal revenue product (MRP) of the 7th worker (\$20) is greater than the marginal factor cost (MFC) of the 7th worker (wage = \$18), and that the hiring of the 8th worker would decrease profits because the MRP of the 8th worker (\$10) is less than the MFC of the 8th worker (wage = \$18). **1 point**

- (e) State that Gato Food will experience diseconomies of scale and explain that as output increases from 40 to 50 units, long-run average total cost increases from \$15 to \$18 per unit. **1 point**

Total for question 2 5 points