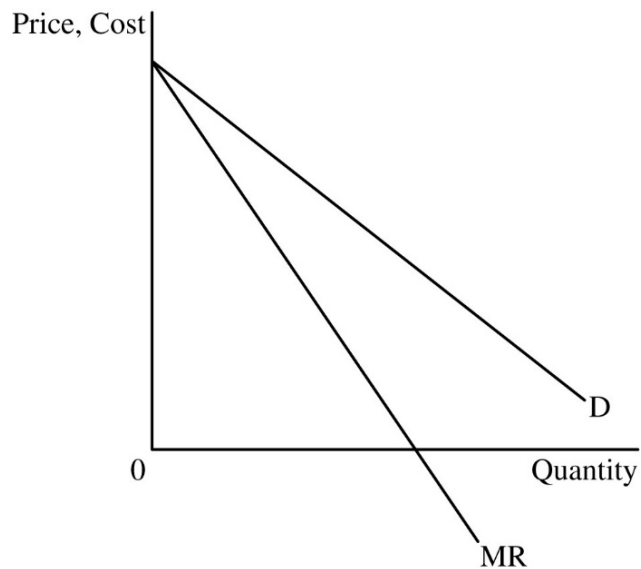
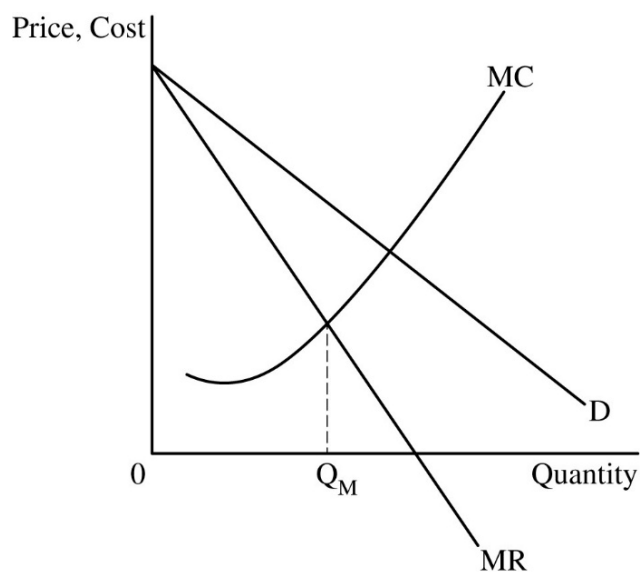


**Question 1: Long****10 points**

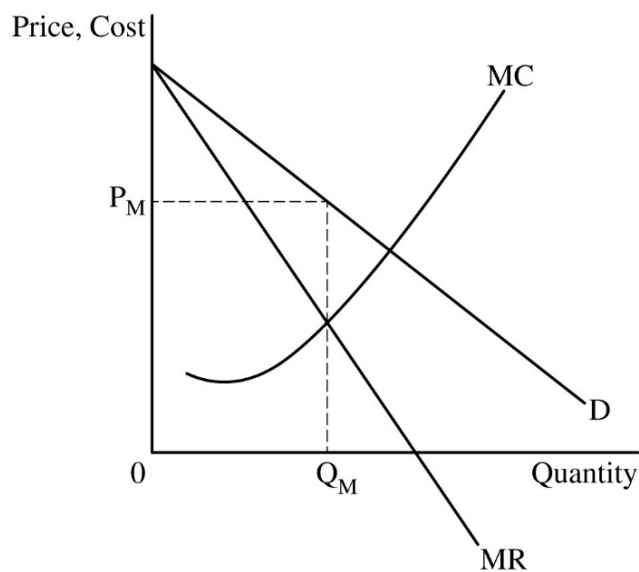
- A** Draw a correctly labeled graph for Voda Reservoir with a downward-sloping demand (D) curve and a downward-sloping marginal revenue (MR) curve with the MR curve below the D curve. **1 point**
- Point 1



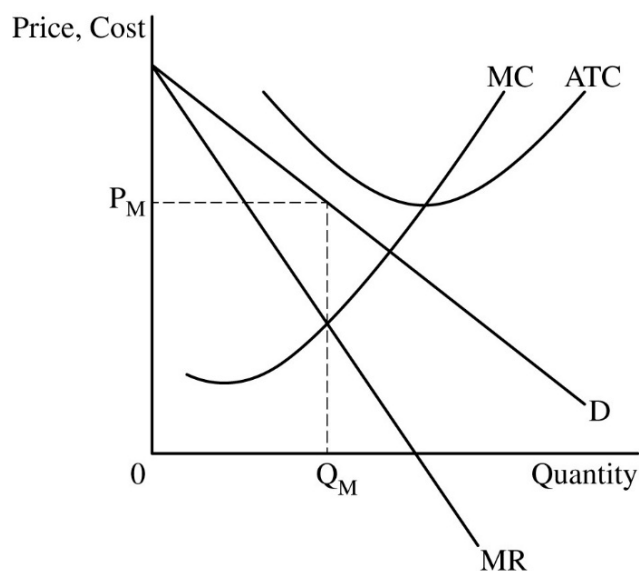
- Point 2 The graph must show a rising marginal cost (MC) curve and the profit-maximizing quantity, labeled  $Q_M$ , where  $MR = MC$ . **1 point**



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

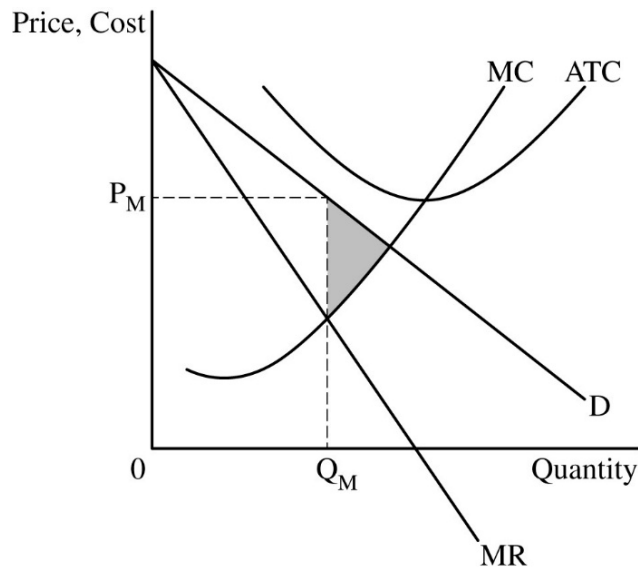


- Point 4 The graph must show the average total cost (ATC) curve above the D curve and show the MC curve passing through the minimum point of the ATC curve. **1 point**



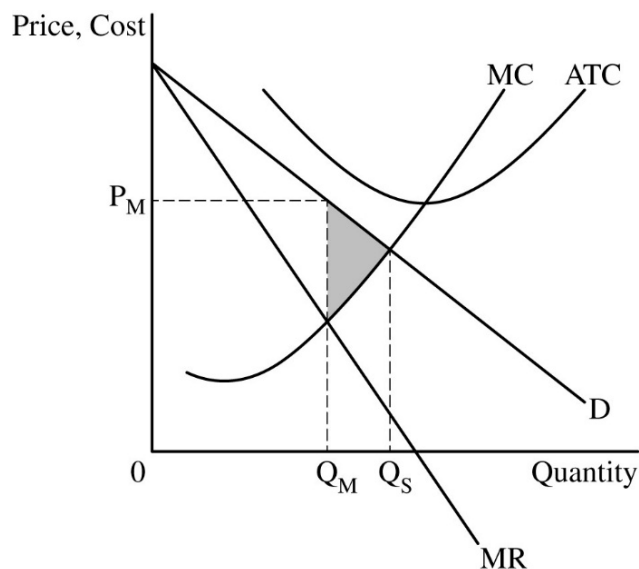
Point 5 The graph must show the area of deadweight loss, shaded completely.

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.

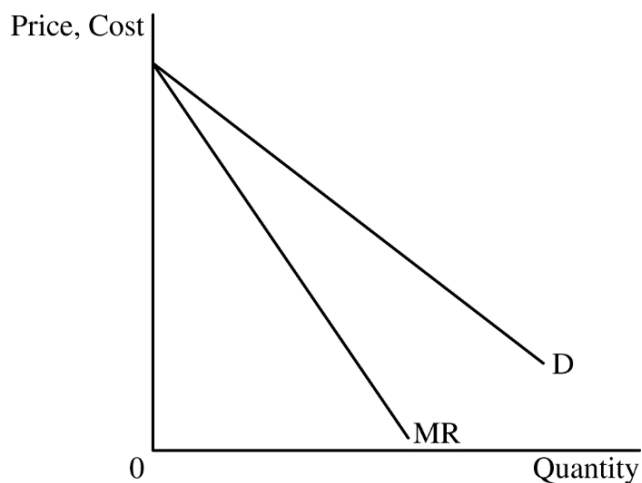
1 point

Point 8

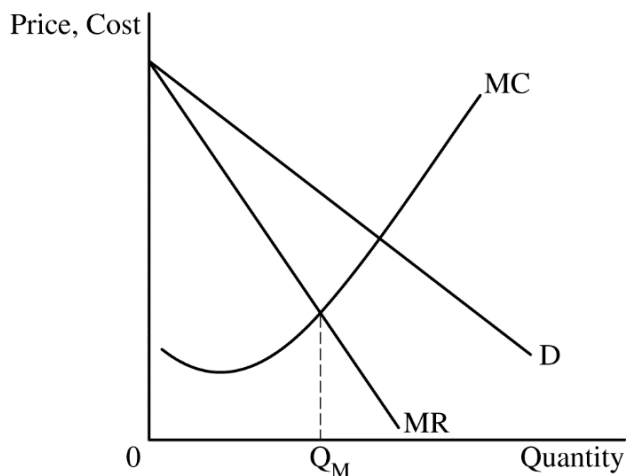
|   |      |                                                                                                                                                                                                                                       |         |
|---|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| 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 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**

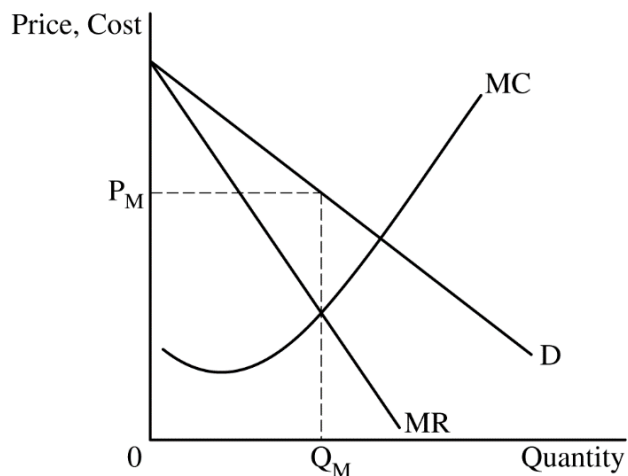


- For the second point, the graph must show a marginal cost (MC) curve and the profit-maximizing quantity, labeled  $Q_M$ , where  $MR = MC$ . **1 point**



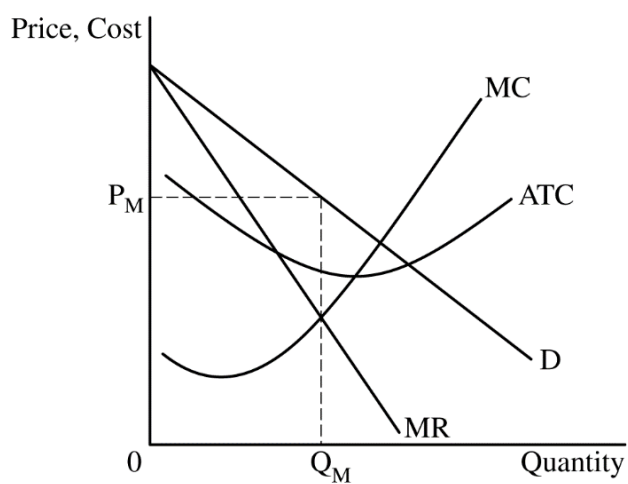
For the third point, the graph must show the profit-maximizing price, labeled  $P_M$ , from the demand curve at  $Q_M$ .

**1 point**



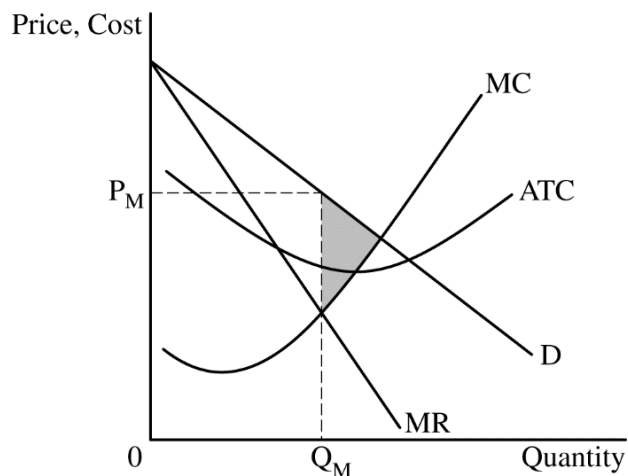
For the fourth point, the graph must show the average total cost (ATC) curve below  $P_M$  at  $Q_M$  and the MC curve passing through the minimum point of the ATC curve.

**1 point**



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

**1 point**

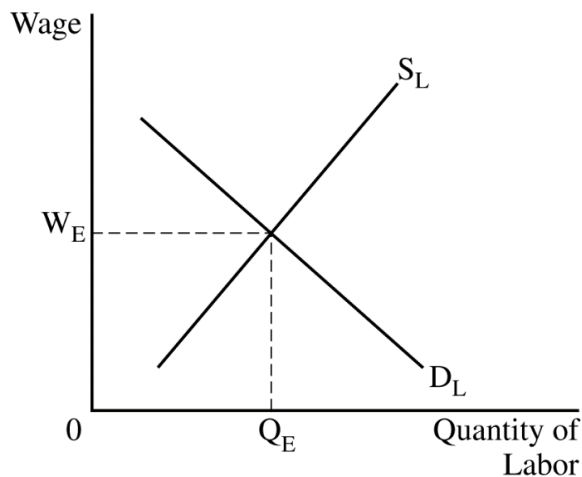


**Total for part (a)**

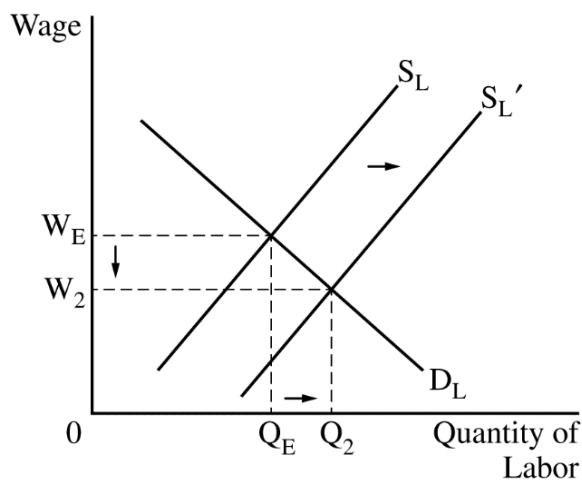
**5 points**

- |            |                                                                                                                                                                                                             |                |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>(b)</b> | State that the government would impose a binding price ceiling.                                                                                                                                             | <b>1 point</b> |
| <b>(c)</b> | 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. | <b>1 point</b> |

- (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**

**Question 3: Short****5 points**

- (a)** Calculate the total net benefit of placing three advertisements as \$2,200 and show your work: **1 point**

$$\text{Total net benefit} = \$3,000 - \$800 = \$2,200$$

- (b)** Calculate the marginal net benefit of the third advertisement as \$500 and show your work: **1 point**

$$\text{Marginal net benefit} = (\$3,000 - \$2,200) - (\$800 - \$500) = \$800 - \$300 = \$500$$

- (c)** Identify the optimal number of advertisements as 4 and explain that the marginal net benefit of the 4<sup>th</sup> advertisement is positive ( $\$600 - \$500 = \$100$ ), but the marginal net benefit of the 5<sup>th</sup> advertisement is negative ( $\$400 - \$800 = -\$400$ ). **1 point**

- (d)** Identify the optimal number of advertisements as 4. **1 point**

- (e)** State that AZY Foods is operating in a monopolistically competitive market structure. **1 point**

**Total for question 3 5 points**