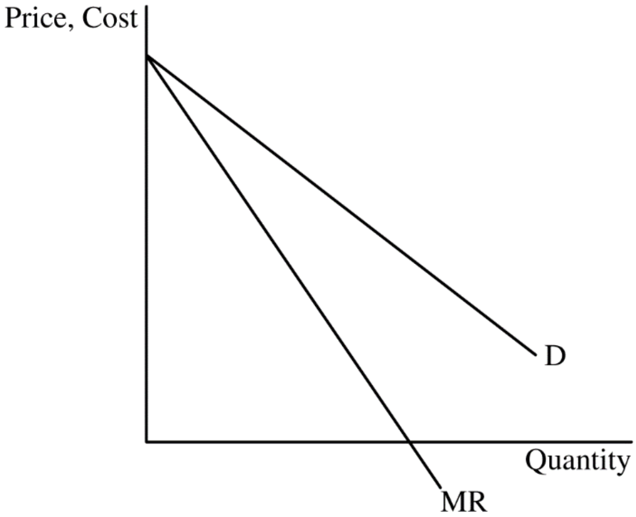
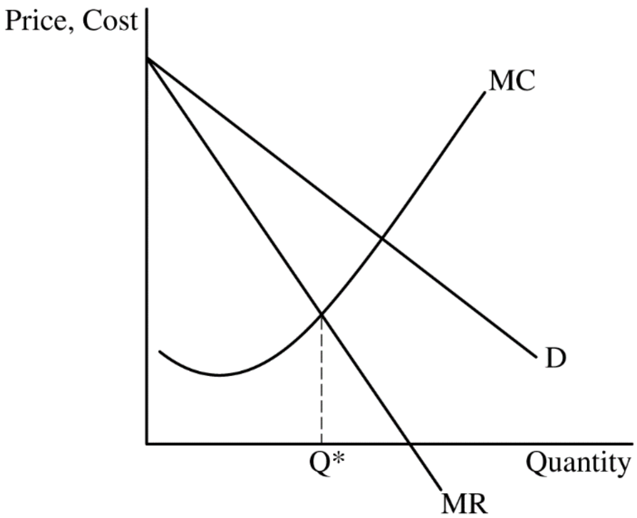
Question 1: Long — 10 points

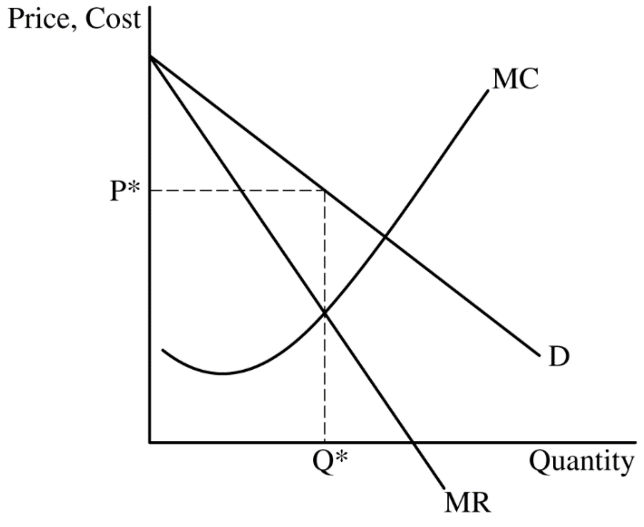
(a) Draw a correctly labeled graph of Arzeye Pharma with a downward-sloping demand (D) curve and a downward-sloping marginal revenue (MR) curve with the MR curve below the D curve. **1 point**



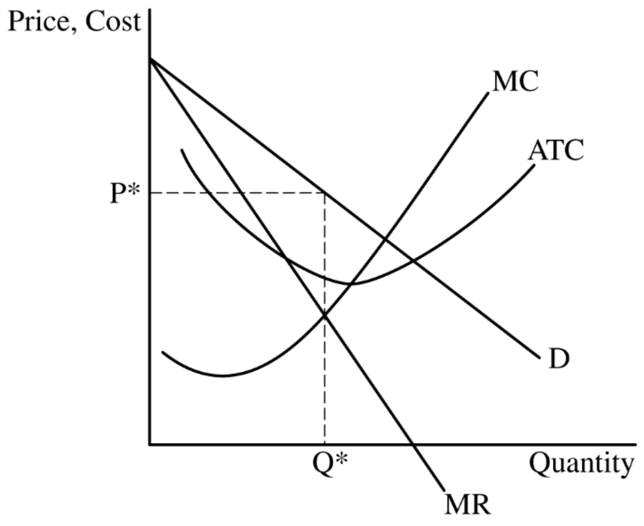
For the second point, the graph must show a rising marginal cost (MC) curve and the profit-maximizing quantity, labeled Q*, where MR = MC. **1 point**



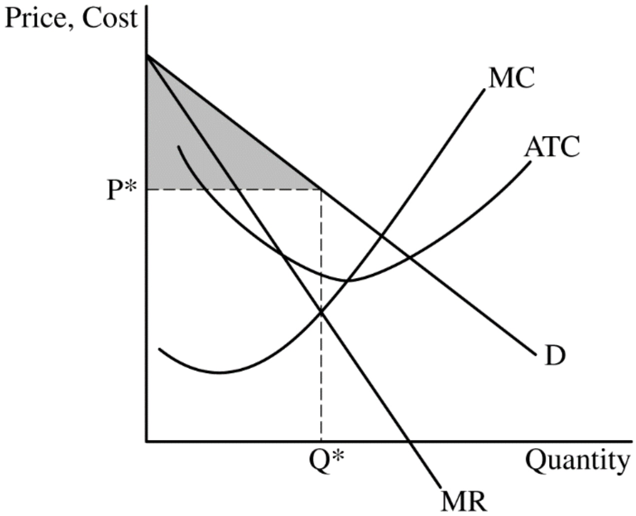
For the third point, the graph must show the profit-maximizing price, labeled P*, from the downward-sloping demand curve at Q*.	**1 point**



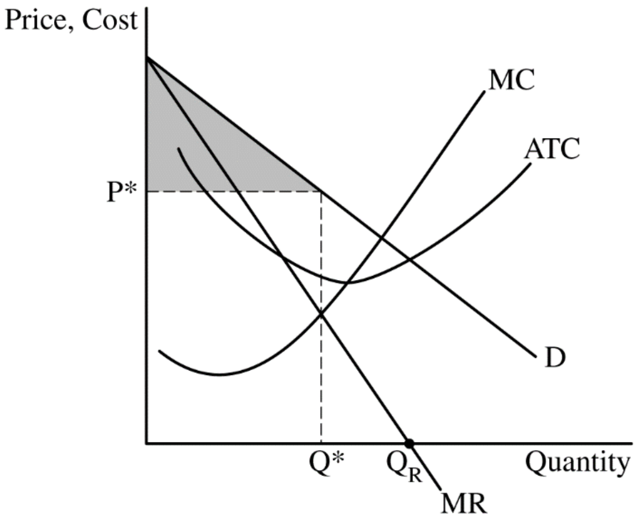
For the fourth point, the graph must show the average total cost (ATC) curve below P* at Q* and the marginal cost curve passing through the minimum point of the ATC curve.	**1 point**



	For the fifth point, the graph must show the area of consumer surplus, shaded completely.	**1 point**

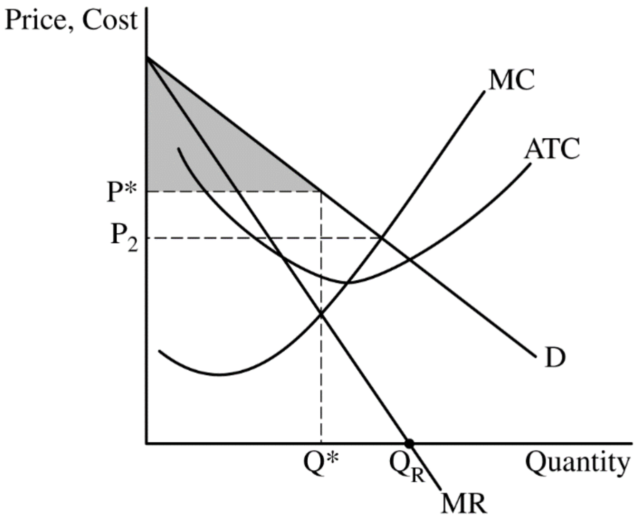


	Total for part (a)	**5 points**
(b) (i)	The graph from part (a) must show the quantity that maximizes total revenue, labeled Q_R, where marginal revenue equals 0.	**1 point**



(ii)	State that demand is unit elastic.	**1 point**
	Total for part (b)	**2 points**

(c) (i)	The graph from part (a) must show the lowest price that Arzeye Pharma would charge if it engaged in perfect price discrimination, labeled P_2, from the intersection of the demand and marginal cost curves.	**1 point**



(ii)	State that consumer surplus would decrease to $0 and explain that Arzeye is able to charge the maximum price each consumer is willing to pay.	**1 point**
	Total for part (c)	**2 points**
(d)	State that Arzeye Pharma's demand will become more elastic and explain that as the patent expires more firms will enter the market which increases the number and availability of substitutes, causing consumers to be more responsive to changes in the price of eye treatments.	**1 point**
	Total for question 1	**10 points**

AP® Microeconomics
2014 Scoring Guidelines

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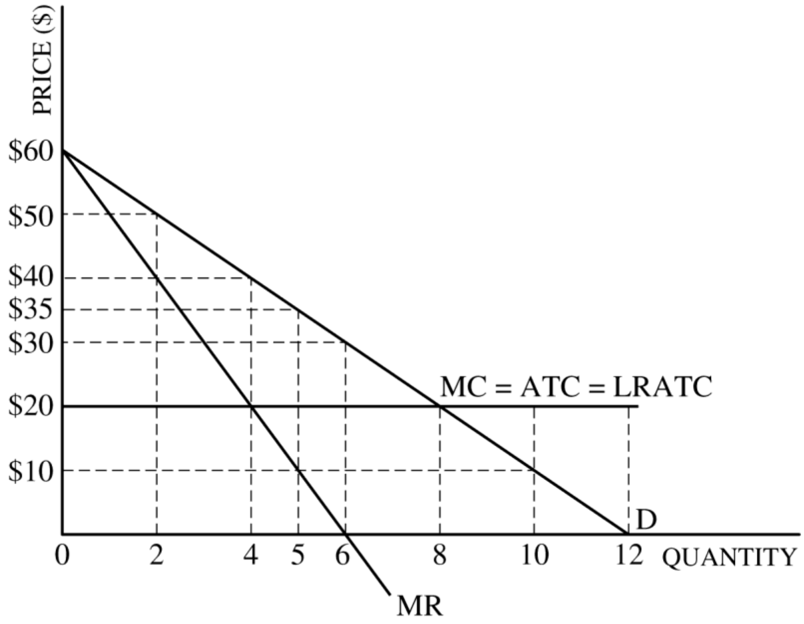
Question 1

10 points (3 + 1 + 3 + 1 + 2)



3 points:

- One point is earned for identifying the profit-maximizing quantity, Q = 4.
- One point is earned for identifying the profit-maximizing price, P = $40.
- One point is earned for identifying the allocatively efficient output, Q = 8.

1 point:

- One point is earned for stating that the firm is not experiencing economies of scale and for explaining that the LRATC is not downward sloping as output increases or LRATC remains constant as output increases.

3 points:

- One point is earned for correctly showing the calculation for the monopolist's economic profit.

  π = (P – ATC) × Q = ($10 – $20) × 10 = –$100
  Or loss of $100
  Other correct calculations are acceptable.

- One point is earned for correctly showing the calculation of consumer surplus.

  CS = 1/2 ($60 – $10) × 10 = $250
  Other correct calculations are acceptable.

- One point is earned for correctly showing the calculation of the deadweight loss.

  DWL = 1/2 ($20 – $10) × (10 – 8) = $10
  Other correct calculations are acceptable.

2014 SCORING GUIDELINES

Question 1 continued

1 point:
- One point is earned for identifying the quantity at which demand is unit elastic, 6.

2 points:
- One point is earned for correctly determining the monopolist's profit.
  1/2[($60 – $20) × 8] = $160
- One point is earned for correctly determining the consumer surplus as zero.

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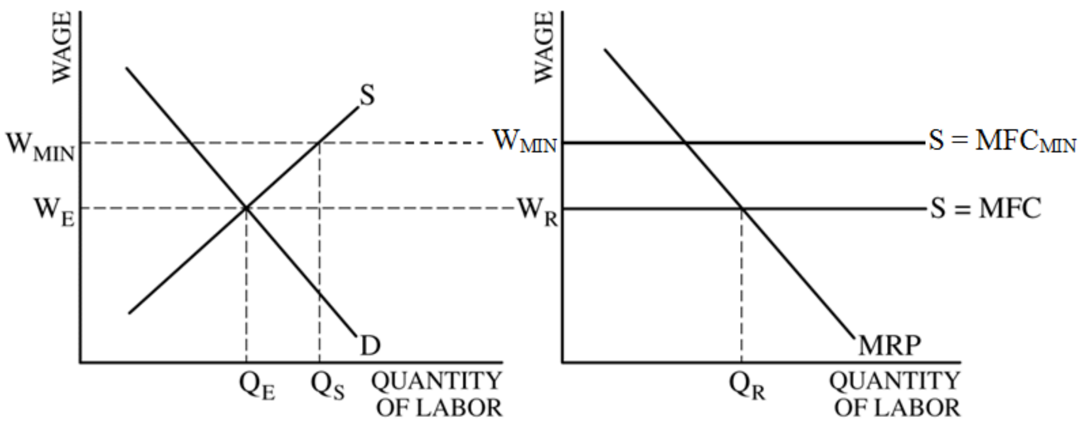
Question 2

6 points (2 + 1 + 3)



2 points:
- One point is earned for drawing a correctly labeled graph of the labor market with an upward-sloping labor supply curve and a downward-sloping labor demand curve and for correctly identifying the equilibrium wage, W_E, and quantity, Q_E.
- One point is earned for drawing a correctly labeled graph showing Ray's Stable demand curve for labor and a horizontal labor supply curve and showing the equilibrium wage, W and quantity, Q_R.

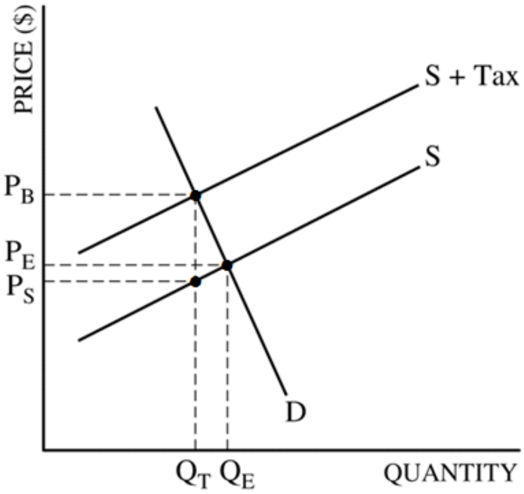
1 point:
- One point is earned for stating that Ray's Stable's marginal factor cost is equal to W and for explaining that the firm is a wage taker in the labor market and/or the market sets the wage.

3 points:
- One point is earned for showing the minimum wage, W_{MIN}, on the graph in part (a) above the equilibrium wage W_E.
- One point is earned for showing the quantity supplied of unskilled labor, Q_S, derived from the supply curve at W_{MIN}.
- One point is earned for stating that the marginal revenue product of the last worker hired will increase.

2014 SCORING GUIDELINES

Question 3

6 points (1 + 3 + 1 + 1)



1 point:

- One point is earned for drawing a correctly labeled graph of the gasoline market showing the equilibrium price, P_E, and quantity, Q_E.

3 points:

- One point is earned for showing P_B above P_E, derived from the D curve at Q_T.
- One point is earned for showing P_S below P_E, derived from the S curve at Q_T.
- One point is earned for showing Q_T less than Q_E.

Note: It is not necessary to draw the S + Tax curve; a "tax wedge" approach is acceptable.

1 point:

- One point is earned for correctly calculating the total tax revenue based on the labeling of the graph.

  All of the following are acceptable when P_B and P_S are correct:
  - $(P_B \times Q_T) - (P_S \times Q_T)$
  - $(P_B - P_S) \times Q_T$
  - $2 \times Q_T$
  - $\text{Tax} \times Q_T$

1 point:

- One point is earned for explaining that the tax burden will fall more on buyers and less on sellers because the demand curve is more inelastic than the supply curve.