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**

Point 2

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**

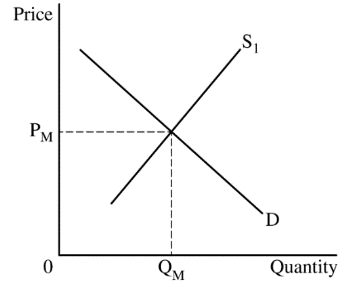
Point 5

$$\text{Total Revenue} = \text{World Price } \times \text{Quantity Sold} = \$5 \times 80 = \$400$$

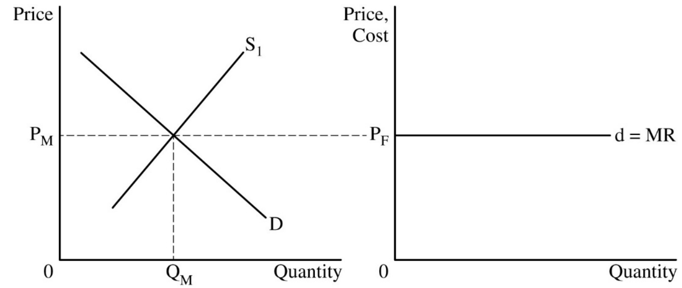
Question 1: Long — 10 points

A

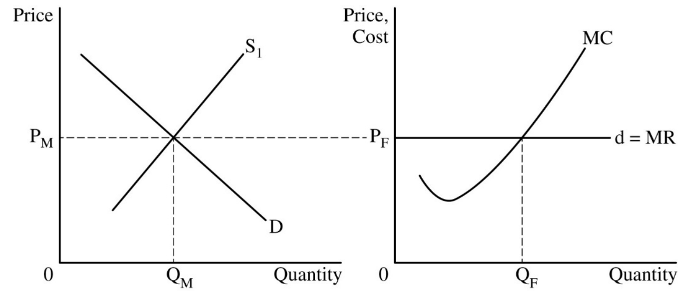
Point 1 — Draw a correctly labeled graph of the market for wooden desks with a downward-sloping demand (D) curve and an upward-sloping supply (S_1) curve and label the market equilibrium price as P_M and the market equilibrium quantity as Q_M. — **1 point**



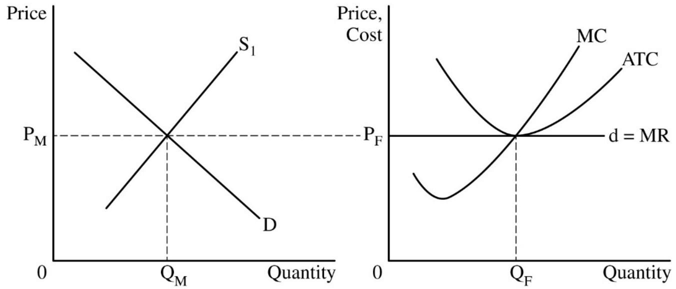
Point 2 — Draw a correctly labeled graph for Deskward that shows the firm's horizontal demand and marginal revenue (d = MR) curve extended from the market equilibrium price (P_M) and label the firm's price as P_F. — **1 point**



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**

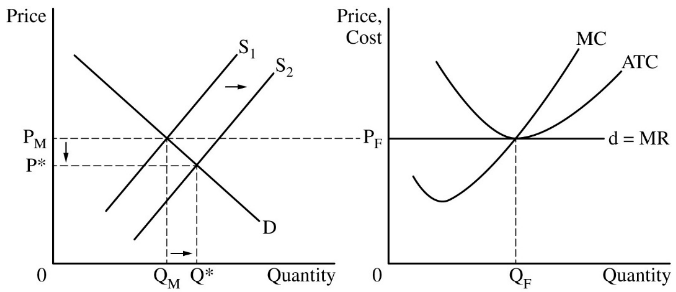


Point 4 The firm's graph must show the average total cost (ATC) curve tangent to the firm's d = MR curve at Q_F and show the MC curve passing through the minimum point of the ATC curve. **1 point**

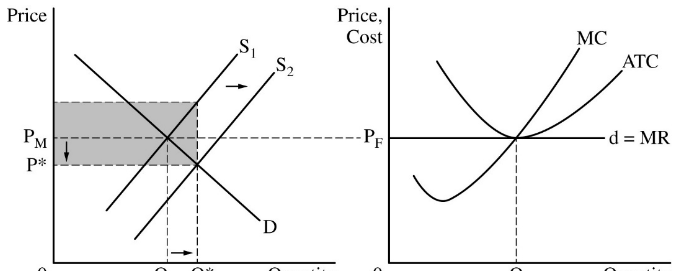


B
Point 5 State that Deskward's profit-maximizing quantity will not change in the short run and explain that a change in a fixed cost does not affect the firm's marginal cost or marginal revenue. **1 point**

C (i)
Point 6 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**



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



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 (i)
Point 9 Calculate the long-run average total cost (LRATC) as \$160 per chair and show your work. **1 point**

$$\text{LRATC at 500 chairs} = \frac{\$80{,}000}{500} = \$160$$

(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 2: Short — 5 points

(a) State that the market equilibrium price is \$15, and the market equilibrium quantity is 300 units. **1 point**

(b) Calculate the deadweight loss as \$500 and show your work. **1 point**

$$\text{Deadweight loss} = \frac{1}{2} \times (\$25 - \$15) \times (400 - 300) = \frac{1}{2} \times \$10 \times 100 = \$500$$

(c) (i) State that the government will grant a per-unit subsidy to consumers to achieve the socially optimal quantity of Good X and explain with **ONE** of the following: **1 point**

- A per-unit subsidy to consumers that internalizes external benefits increases the incentive and ability of consumers to buy the socially optimal quantity (400).
- A per-unit subsidy to consumers equal to the marginal external benefit increases consumption to the socially optimal quantity (400), by lowering the price paid by the consumer.
- A per-unit subsidy to consumers equal to the difference between marginal social benefit and marginal private benefit increases the quantity exchanged to the socially optimal quantity (400).

(ii) State that the dollar value of the per-unit subsidy is \$10. **1 point**

Total for part (c) 2 points

(d) State no, the price ceiling will not achieve the socially optimal quantity of Good X and explain that the price ceiling will cause the quantity exchanged in the market, which is limited by the quantity supplied (200), to be less than the socially optimal quantity (400). **1 point**

Total for question 2 5 points

Question 3: Short — 5 points

(a) Calculate the total economic surplus as $960 and show the work. — **1 point**

$$\text{Total Economic Surplus} = \frac{1}{2} \times (\$150 - \$30) \times (16 - 0) = \frac{1}{2} \times \$120 \times 16 = \$960$$

(b) State that the quantity of backpacks purchased will decrease and explain that the price ceiling causes a decrease in the quantity supplied of backpacks and the quantity purchased in the market will be limited by the quantity supplied (8), which is less than the equilibrium quantity (16). — **1 point**

(c) (i) State the price consumers pay per backpack after the per-unit subsidy is $75. — **1 point**

(ii) Calculate the total cost of the subsidy to the government as $600 and show the work. — **1 point**

$$\text{Total Cost of Subsidy to the Government} = \text{Per-unit Subsidy} \times \text{Quantity of Backpacks}$$

$$\text{Total Cost of Subsidy to the Government} = \$30 \times 20 = \$600$$

(iii) State the deadweight loss will increase and explain with **ONE** of the following. — **1 point**

- The per-unit subsidy causes the new equilibrium quantity (20 backpacks) to be greater than the allocatively efficient quantity (16 backpacks).
- The per-unit subsidy causes the marginal cost ($105) to be greater than the marginal benefit ($75) at the new equilibrium quantity (20 backpacks).

Total for part (c) — 3 points

Total for question 3 — 5 points

Question 3: Short — 5 points

(a) Calculate the total revenue at the market price as $250 and show your work. — **1 point**

Total Revenue = (P × Q) = ($5 × 50) = $250

(b) (i) State that the quantity exchanged at the price floor will be 30 bushels. — **1 point**

(ii) Calculate the deadweight loss as $40 and show your work. — **1 point**

$$\text{Deadweight loss} = \frac{(\$7-\$3)\times(50-30)}{2} = \frac{\$80}{2} = \$40$$

(iii) Calculate the producer surplus as $245 and show your work. — **1 point**

$$\text{Producer surplus} = \frac{(\$7-\$0)\times(70-0)}{2} = \frac{\$490}{2} = \$245$$

(iv) State that the quantity of corn purchased by the government will increase and explain that this happens because the price floor leads to short-run economic profits for typical firms, which incentivize new firms to enter the market, leading to an increase in the market supply of corn and/or because the market supply becomes more elastic in the long run. — **1 point**

Total for part (b) — 4 points

Total for question 3 — 5 points

2019

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AP® Microeconomics

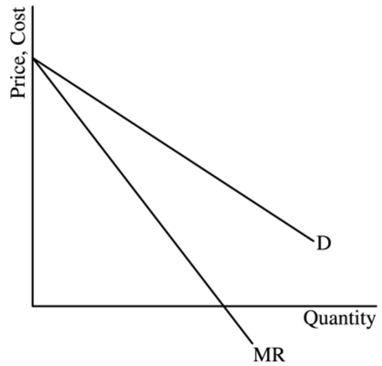
Scoring Guidelines
Set 2

Question 1

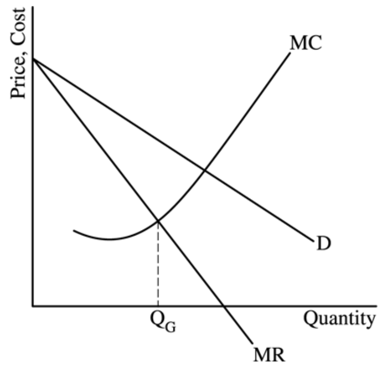
9 points (5 + 2 + 2)

(a) 5 points

- One point is earned for drawing a correctly labeled graph of the monopoly showing downward-sloping demand (D) and marginal revenue (MR) curves with the MR curve below the demand curve.

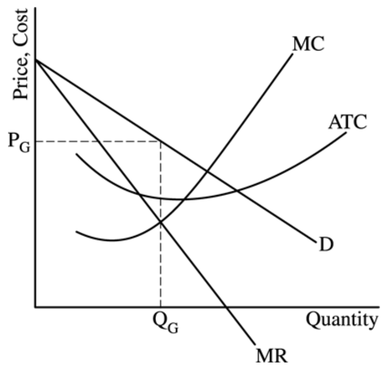


- One point is earned for showing the profit-maximizing quantity, labeled Q_G, where MR=MC.

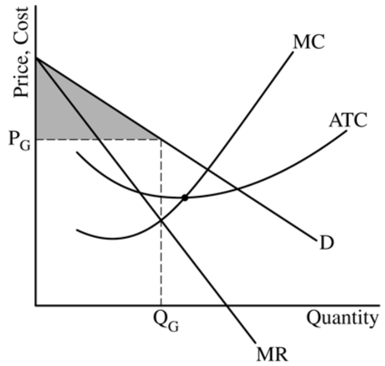


Question 1 (continued)

- One point is earned for both showing the profit-maximizing price, labeled P_G, from the demand curve at Q_G, and above the average total cost (ATC) curve.
- One point is earned for showing the marginal cost (MC) curve rising and passing through the minimum point of the ATC curve.



- One point is earned for completely shading the area of the consumer surplus.



2019 SCORING GUIDELINES

Question 1 (continued)

(b) 2 points

- One point is earned for stating that Gigantic Pharmaceutical Corporation's demand for warehouse workers will increase and for explaining that the marginal revenue product of labor increases because of the increase in the product price.

- One point is earned for stating that the wage rate Gigantic pays to its warehouse workers will not change and the number of workers hired will increase.

(c) 2 points

- One point is earned for stating that Gigantic's producer surplus will decrease.

- One point is earned for stating that the consumer surplus will increase and for explaining that because of the increased competition the price will decrease and the quantity will increase.

2019 SCORING GUIDELINES

Question 2

5 points (2 + 2 + 1)

(a) 2 points

- One point is earned for identifying the after-tax price paid by consumers as P_3 and the after-tax quantity as Q_2.

- One point is earned for identifying the area representing the total tax revenue as:
  P_1P_3SZ, or
  $(P_3 \times Q_2) - (P_1 \times Q_2)$, or
  $(P_3 - P_1) \times Q_2$

(b) 2 points

- One point is earned for stating that the price paid by consumers will be higher.

- One point is earned for stating that the tax revenue received by the government will be higher because the tax does not reduce the quantity purchased when the demand is perfectly inelastic, while the quantity does fall when demand is downward sloping (i.e., $Q_3 > Q_2$).

(c) 1 point

- One point is earned for stating that the producer surplus will stay the same, and for explaining that this is because both the price received by sellers (P_2) and the quantity sold (Q_3) do not change. It is also acceptable to explain that producer surplus stays the same because the consumer bears the full burden of the tax.

2019 SCORING GUIDELINES

Question 3

6 points (1 + 1 + 1 + 1 + 2)

(a) 1 point

- One point earned for stating that Jackpot Florist's dominant strategy is to close at 6 p.m.

(b) 1 point

- One point is earned for stating that this is not the profit-maximizing action by Boulevard Gardens and for explaining that Boulevard will earn $30 by choosing Delivery instead of $20 choosing No Delivery.

(c) 1 point

- One point is earned for identifying the profit for Boulevard Gardens in the Nash equilibrium as $30.

(d) 1 point

- One point is earned for stating that they would choose to close at 9 p.m. and offer No Delivery.

(e) 2 points

- One point is earned for redrawing the payoff matrix showing the effect of the agreement.

		Boulevard	
		Delivery	**No Delivery**
Jackpot	6 p.m.	$35,$30	$43,$32
	9 p.m.	$37,$38	$45,$40

- One point is earned for stating that Boulevard will agree to Jackpot's proposal and for explaining that Boulevard will be better off because this will increase the payoff from $30 to $40.

2018

AP® CollegeBoard

AP Microeconomics
Scoring Guidelines

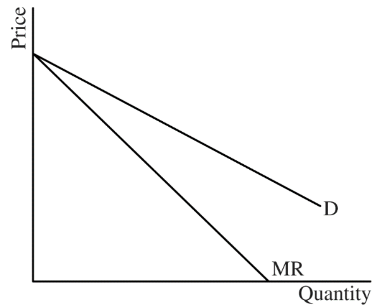
AP Microeconomics: **2018**

AP® MICROECONOMICS
2018 SCORING GUIDELINES

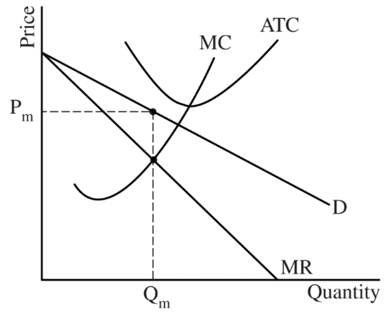
Question 1

9 points (5 + 1 + 1 + 2)

(a) 5 points:



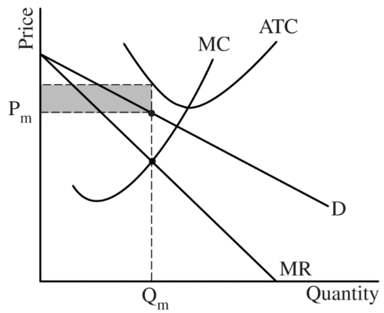
- One point is earned for drawing a correctly labeled graph for a monopoly showing a downward sloping demand (D) curve with the marginal revenue (MR) curve below the demand curve.



- One point is earned for showing the marginal cost (MC) curve rising and passing through the minimum of the average total cost (ATC) curve.
- One point is earned for showing the profit-maximizing quantity, Q_m, where MR = MC.
- One point is earned for showing the price, P_m, from the demand curve at Q_m.

2018 SCORING GUIDELINES

Question 1 (continued)



- One point is earned for completely shading the area representing negative economic profit and showing the ATC curve above the demand curve for all quantities.

(b) 1 point:

- One point is earned for stating that the price must be greater than average variable cost, OR total revenue must be greater than total variable cost, OR the firm's current economic loss is less than its fixed cost, which is equal to the firm's loss if it shuts down.

(c) 1 point:

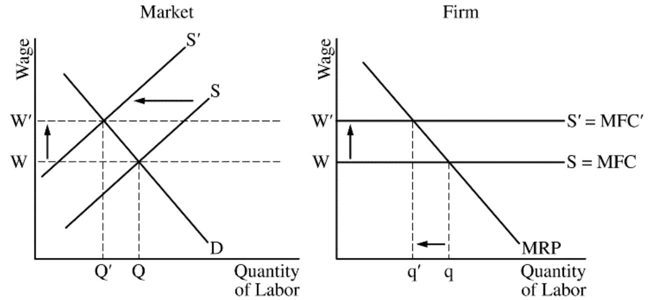
- One point is earned for stating that total revenue will decrease and explaining with one of the following reasons.
  - The monopolist is operating on the elastic portion of the demand curve.
  - The quantity effect is greater than the price effect.
  - The percentage change in quantity demanded is greater than the percentage change in price.
  - MR is positive.

(d) 2 points:

- One point is earned for stating or graphically showing that the wage rate will increase because the market supply of labor decreases (shifts left).
- One point is earned for stating the marginal revenue product (MRP) of the last worker hired will increase and explaining with one of the following reasons.
  - The firm is hiring fewer workers now and therefore the marginal product of the last worker hired increases (diminishing marginal product).
  - The market wage (marginal factor cost or MFC) increased and the profit-maximizing firm will hire where MRP = MFC.
  - There is an upward movement along the firm's MRP curve as wage or MFC increases (shifts up).

2018 SCORING GUIDELINES

Question 1 (continued)



2018 SCORING GUIDELINES

Question 2

6 points (1 + 1 + 1 + 1 + 2)

(a) 1 point:

- One point is earned for stating positive externality, and for explaining that either marginal social benefit is greater than marginal private benefit (MSB>MPB) or the equilibrium quantity is less than the socially optimal quantity.

(b) 1 point:

- One point is earned for identifying the market equilibrium price as $6 and the market equilibrium quantity as 16 units.

(c) 1 point:

- One point is earned for identifying the area of the deadweight loss as DEF.

(d) 1 point:

- One point is earned for identifying $4 as the dollar value of the per-unit subsidy.

(e) 2 points:

- One point is earned for identifying 8 units.
- One point is earned for stating no and explaining with one of the following reasons:
  - The quantity exchanged in the market will be less than the socially optimal quantity.
  - MSB>MSC at a quantity of 8 units.
  - Deadweight loss increased after the price floor.

2018 SCORING GUIDELINES

Question 3

5 Points (1 + 1 + 1 + 1 + 1)

(a) 1 point:

- One point is earned for correctly calculating the gain, 20 points.

(b) 1 point:

- One point is earned for correctly calculating the opportunity cost, 6 points for that hour (or 6/20).

(c) 1 point:

- One point is earned for stating that the opportunity cost increases and for using one the following explanations:
  - The expected score on microeconomics decreases at an increasing rate with each additional hour spent studying history.
  - The marginal cost is rising (expected score on microeconomics decreases) for each additional hour spent studying history.

(d) 1 point:

- One point is earned for stating that Nirali should spend 2 hours on studying microeconomics and 3 hours on studying history to maximize the sum of expected scores.

(e) 1 point:

- One point is earned for stating that Nirali will spend the additional hour studying microeconomics because studying microeconomics will increase her expected total score by 8 points compared to 5 points if spent studying history.

2017

AP CollegeBoard

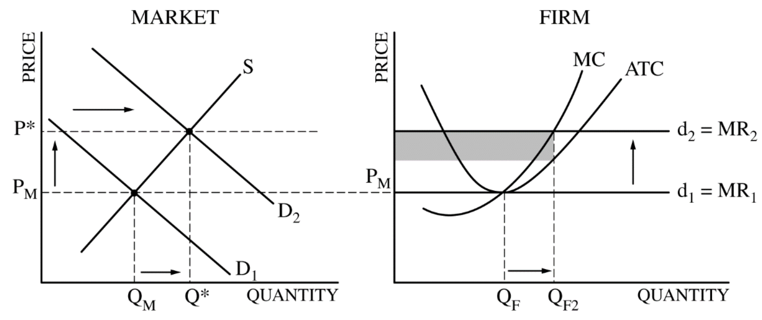
AP Microeconomics

Scoring Guidelines

2017 SCORING GUIDELINES

Question 1

10 points (4 + 2 + 1 + 1 + 2)



(a) 4 points:

- One point is earned for drawing a correctly labeled graph of the corn market with P_M and Q_M. The market demand curve must be downward sloping and the market supply curve must be upward sloping.
- One point is earned for showing a horizontal demand curve on the firm's graph extended from the market equilibrium price, P_M.
- One point is earned for identifying the firm's profit-maximizing quantity, Q_F, at marginal cost equal to marginal revenue ($MC=MR_1$).
- One point is earned for showing the firm's average total cost (ATC) curve and marginal cost (MC) passing through the minimum point of ATC, and P = ATC = MC at Q_F.

Note: All quantities and prices should be labeled on the axes and connected to the intersection points by dashed lines.

(b) 2 points:

- One point is earned for showing a rightward shift of the market demand curve and a higher price and quantity, P^* and Q^*.
- One point is earned for completely shading the area representing the profit for a representative corn farmer.

(c) 1 point:

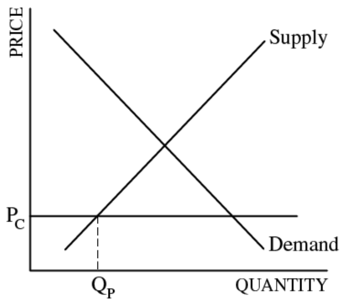
- One point is earned for stating that the market quantity will increase and the market's price will decrease in the long run, and for explaining that new corn farmers will enter the market, which will increase the market supply curve.

2017 SCORING GUIDELINES

Question 1 (continued)

(d) 1 point:

- One point is earned for stating that the price of soybeans in the next planting season will increase, and for explaining that the supply of soybeans will decrease because the higher price of corn encourages farmers to substitute corn for soybeans in production.



(e) 2 points:

- One point is earned for showing a correctly labeled graph of the corn market, with the price ceiling, P_C, below the equilibrium price of corn.
- One point is earned for showing the quantity purchased by consumers in the corn market labeled as Q_P where P_C intersects the supply curve.

2017 SCORING GUIDELINES

Question 2

5 points (1 + 4)

(a) 1 point:

- One point is earned for stating that the firm would be operating with increasing returns to scale and for explaining that doubling inputs will more than double output (output increases from 10 units to 50 units as a result of doubling labor and capital) **or** for explaining that average total cost decreases from $27.50 to $11 when labor and capital double.

(b) 4 points:

- One point is earned for correctly calculating the marginal product (MP) for the third unit of labor as 25 units and showing the work: $\frac{75-50}{3-2} = 25$.
- One point is earned for answering yes and for explaining that the MP of the third unit of labor (25 units) is less than the MP of the second unit of labor (30 units).
- One point is earned for correctly calculating the firm's average total cost (ATC) and showing the work: $\frac{75*2}{75} + \frac{200*3}{75} = 2 + 8 = \$10$ **or** $\frac{(75*2)+(200*3)}{75} = \frac{750}{75} = \$10$.
- One point is earned for identifying the lowest output price as $8 at which the third unit of labor would be hired.

2017 SCORING GUIDELINES

Question 3

7 points (2 + 1 + 1 + 2 + 1)

(a) 2 points:

- One point is earned for correctly identifying the monopolist's profit-maximizing quantity, Q_3.
- One point is earned for correctly identifying the monopolist's profit-maximizing price, P_4.

(b) 1 point:

- One point is earned for stating that MSC > MPC **or** that the MSC curve exceeds, is above, or is greater than the MPC curve.

(c) 1 point:

- One point is earned for correctly identifying the socially optimal quantity, Q_3.

(d) 2 points:

- One point is earned for correctly identifying the dollar value of the tax, P_4–P_1.
- One point is earned for correctly identifying the profit-maximizing quantity associated with the tax, Q_2.

(e) 1 point:

- One point is earned for correctly stating that the deadweight loss increases because the monopolist's profit-maximizing quantity is equal to the socially optimal quantity before the tax and is less than the socially optimal quantity after the tax.

AP® Microeconomics 2016 Scoring Guidelines

2016 SCORING GUIDELINES

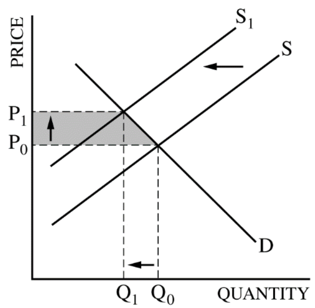
Question 1

10 points (3+3+4)

(a) 3 points:

- One point is earned for stating that the quantity supplied exceeds the quantity demanded at the price floor **or** the price floor would result in a surplus because the price floor is binding or effective.
- One point is earned for correctly calculating the price elasticity of supply.
  Students can use either the midpoint formula or the point elasticity formula.
  E = (500/1250) / (0.2/1.1) = 2.2
  E = (50%/20%) = 2.5
  E= (500/0.2) × (1/1000) = 2.5
  E = [(1500–1000)/1000]/[(1.2–1)/1] = 0.5/0.2 = 2.5
  E = (500/0.2) x (1.2/1500) = 2
- One point is earned for stating that the supply is elastic and for explaining that the **percentage** change in quantity supplied exceeds the **percentage** change in price or because price elasticity of supply is greater than one. (Other equivalent explanations are accepted.)

(b) 3 points:



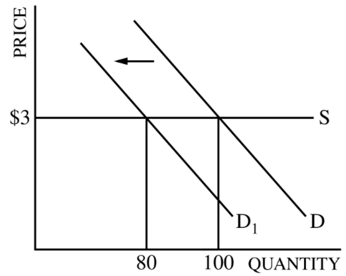
- One point is earned for drawing a correctly labeled graph and for showing the equilibrium price and quantity, labeled P_0 and Q_0, respectively.
- One point is earned for shifting the supply curve to the left and for showing the new equilibrium price and quantity, labeled P_1 and Q_1, respectively.
- One point is earned for completely shading on the graph the area representing the change in consumer surplus.

2016 SCORING GUIDELINES

Question 1 (continued)

(c) 4 points:

- One point is earned for stating that coffee and muffins are complementary goods.



- One point is earned for drawing a correctly labeled graph for the coffee market and showing a horizontal supply curve (S) and a downward sloping demand curve (D).
- One point is earned for shifting the demand curve to the left and for showing a decrease in the equilibrium quantity and no change in the equilibrium price of coffee.
- One point is earned for correctly calculating the new equilibrium quantity and showing the work.
  %ΔQ = (10% × –2) = –20%
  New Equilibrium Quantity = 100 × (–20%) = 80
  OR
  New Equilibrium Quantity = 100 – (0.2 × 100) = 80

(Using the midpoint formula is also acceptable.)

2016 SCORING GUIDELINES

Question 2

7 points (1+1+1+1+3)

(a) 1 point:
- One point is earned for stating that the marginal benefit is $1.

(b) 1 point:
- One point is earned for correctly calculating the total consumer surplus from consuming 5 units of X.

CS = ($16 − $4) + ($12 − $4) + ($8 − $4) + ($4 − $4) + ($1− $4) = $21
OR
CS = $41− $20 = $21

(c) 1 point:
- One point is earned for explaining that this combination of X and Y is not optimal because the marginal benefit per dollar of good X (MB_x/P_x=$4/$4 =1) is less than the marginal benefit per dollar of good Y (MB_y/P_y=$8/$2=4). (This can also be stated as $MB_x/MB_y < P_x/P_y$.)

  ($MB_x/P_x = 1$) is not equal to ($MB_y/P_y = 4$) is acceptable.

  MB_x/P_x is less than MB_y/P_y is acceptable.

  MB_y/P_y is greater than MB_x/P_x is acceptable.

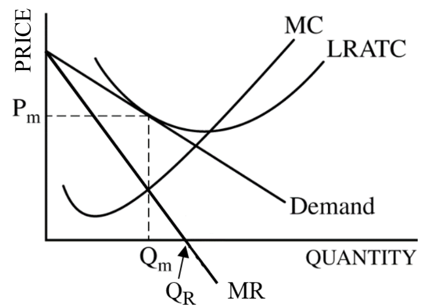
(d) 1 point:
- One point is earned for stating that Martha's optimal combination is 3 units of X and 4 units of Y.

(e) 3 points:
- One point is earned for stating that the optimal quantity of good Y will decrease.
- One point is earned for stating that the optimal quantity of good Y will decrease.
- One point is earned for stating that the optimal quantity of good Y will stay the same.

2016 SCORING GUIDELINES

Question 3

6 points (4+1+1)



(a) 4 points:
- One point is earned for drawing a correctly labeled graph showing a downward sloping demand curve with MR curve below the demand curve.
- One point is earned for showing the quantity, Q_m, at MC=MR
- One point is earned for showing the price, P_m, on the demand curve above Q_m
- One point is earned for showing the long-run average total cost tangent to the demand curve at Q_m.

(b) 1 point:
- One point is earned for showing Q_R at MR=0.

(c) 1 point:
- One point is earned for stating that firms in this market are experiencing economies of scale in long-run equilibrium because **LRATC** is decreasing OR because Q_m is to the left of the minimum point of the LRATC.

AP® Microeconomics 2015 Scoring Guidelines

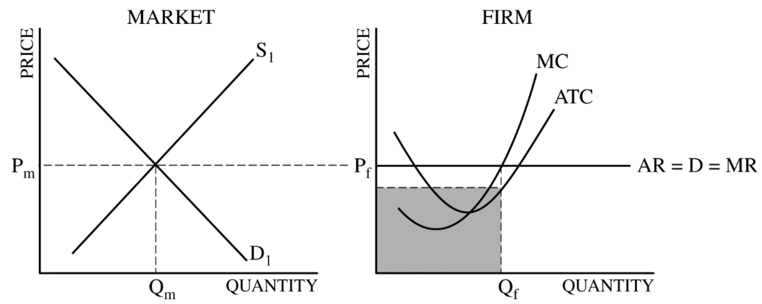
2015 SCORING GUIDELINES

Question 1

10 points (1+5+1+3)

(a) 1 point:

- One point is earned for stating that the firm's price is equal to the market price because the firm is a price taker.



(b) 5 points:

- One point is earned for drawing a correctly labeled graph of the market with P_m, Q_m, a downward-sloping demand curve, and an upward-sloping supply curve.
- One point is earned for identifying the firm's profit-maximizing quantity, Q_f at marginal cost (MC) equal to price or demand, or marginal revenue, or average revenue.
- One point is earned for showing the firm's average revenue curve, labeled AR, which is horizontal at the price determined by the market.
- One point is earned for showing the firm's average total cost (ATC) curve, such that the MC curve is passing through the minimum of the ATC curve, and P > ATC.
- One point is earned for showing the area representing total cost shaded completely.

(c) 1 point:

- One point is earned for stating that the firm's total revenue will fall to zero, because quantity decreases to zero, or because the firm is a price taker, or because the firm is facing a perfectly elastic demand, or the firm loses all of its customers, or the firm has no market power.

(d) 3 points:

- One point is earned for stating that the firm's quantity will remain the same in the short run and for explaining that MR or MC will not change in the short run. (Or, because the lump sum subsidy has no effect on marginal revenue and/or marginal cost, or that only fixed costs will be affected.)
- One point is earned for stating that the market price will decrease and the quantity will increase.
- One point is earned for the explanation that positive profits lead to entry of new firms that will increase the industry supply.

2015 SCORING GUIDELINES

Question 2

5 points (1+1+3)

(a) 1 point:
- One point is earned for stating that Breadbasket has a dominant strategy of setting a low price but Quicklunch does not have a dominant strategy.

(b) 1 point:
- One point is earned for correctly identifying the profit for Breadbasket is $120 and the profit for Quicklunch is $80.

(c) 3 points:
- One point is earned for redrawing the payoff matrix with the subsidy:

		Quicklunch	
		High Price	Low Price
Breadbasket	High Price	$105, $110	$40, $150
	Low Price	$140, $80	$95, $90

- One point is earned for stating that Quicklunch will choose a low price strategy and for explaining that with the subsidy Quicklunch will earn higher profits if it charges a lower price than if it charges a higher price. (The explanation has to include $90>$80 or profits increase by $10.)
- One point is earned for stating that Breadbasket's profits will decrease from $120 to $95.

2015 SCORING GUIDELINES

Question 3

6 points (1+1+1+1+2)

(a) 1 point:
- One point is earned for calculating the total producer surplus as (1/2 × 20 × 20) = $200.

(b) 1 point:
- One point is earned for stating that imposing a price floor at $16 is ineffective and will not create a surplus or a shortage in the market because it is set below the equilibrium price, or because it is not binding.

(c) 1 point:
- One point is earned for stating that imposing a price ceiling at $12 will create a shortage because quantity demanded is greater than quantity supplied, or because the price ceiling is binding.

(d) 1 point:
- One point is earned for calculating the deadweight loss as $150 and for showing:

  (1/2 × 30 × 10)
  or
  (1/2 × 10 × 10) + (1/2 × 20 × 10)
  or
  $50 + $100

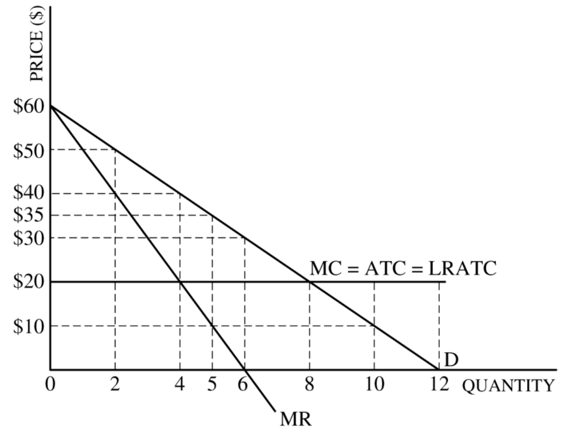
(e) 2 points:
- One point is earned for calculating the price elasticity of demand as [(24−20)/20 / (12−20)/20] = −0.5, or for correctly using the midpoint formula.
- One point is earned for stating that in this price range the demand is relatively inelastic.

AP® Microeconomics
2014 Scoring Guidelines

2014 SCORING GUIDELINES

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.

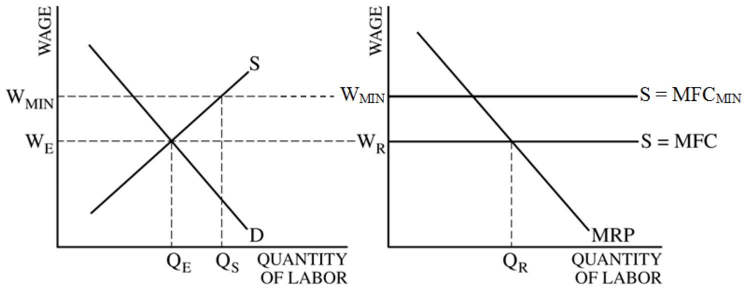
2 points:

- 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.

2014 SCORING GUIDELINES

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.

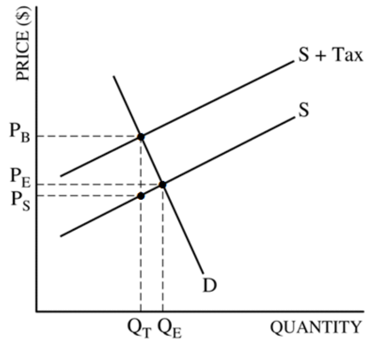
3 points:

- 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.