

2022

AP[®]

 CollegeBoard

AP[®] Microeconomics

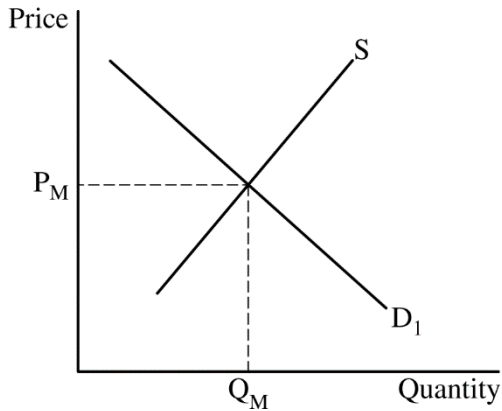
Scoring Guidelines Set 2

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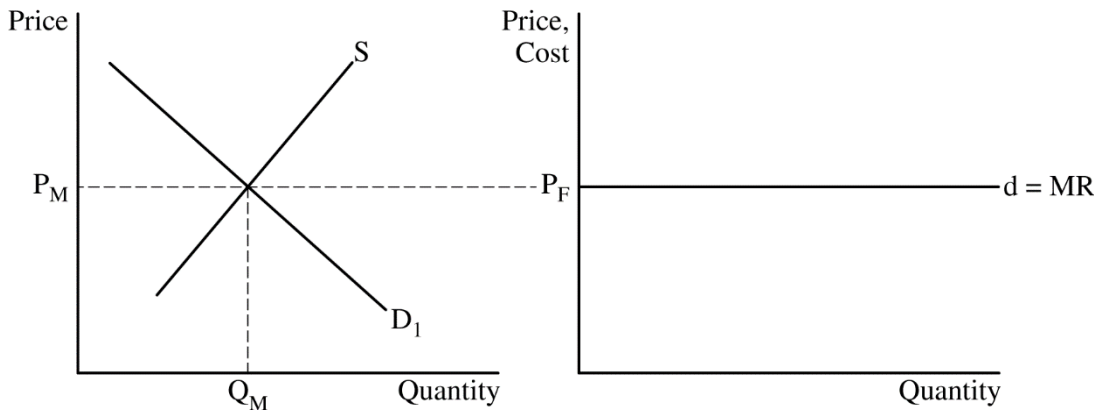
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Question 1: Long **10 points**

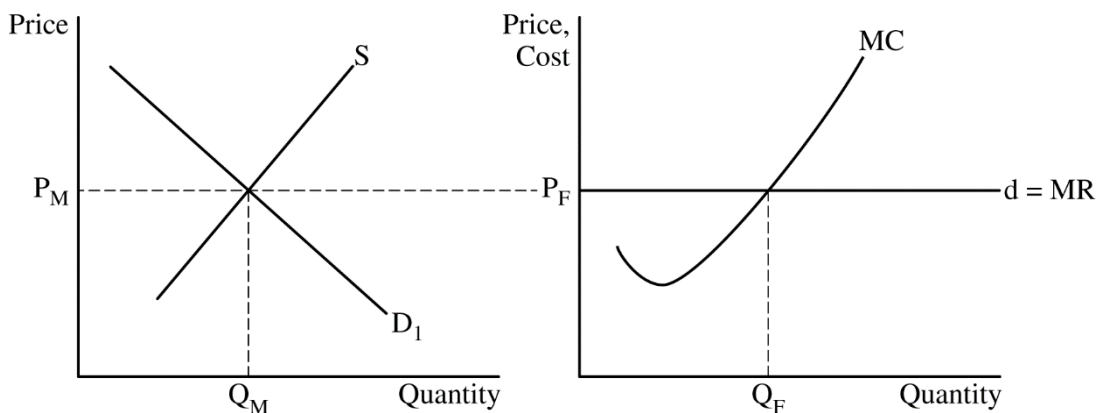
- (a) Draw a correctly labeled graph of the market for sugar and show the equilibrium price and quantity, labeled P_M and Q_M , respectively. **1 point**



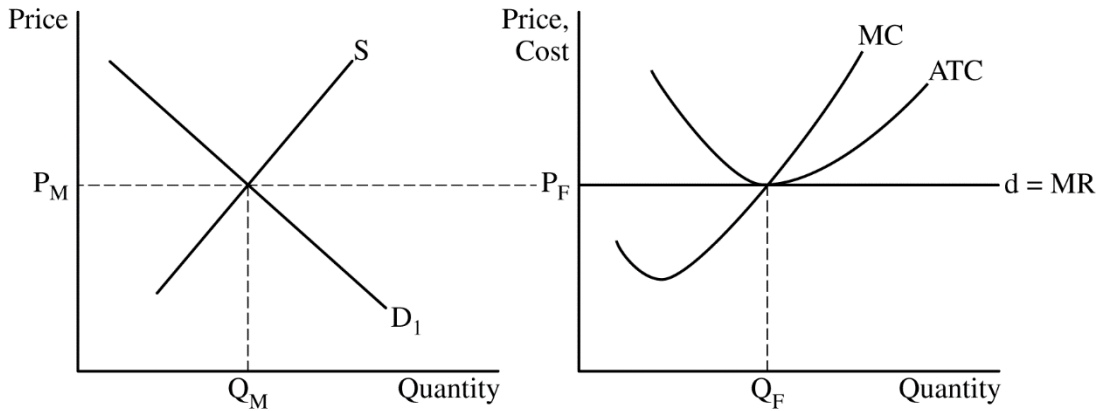
- For the second point, the graph must show a horizontal demand curve ($d = MR$) for Frank Sugar Co. and label the firm's profit-maximizing price P_F at P_M . **1 point**



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

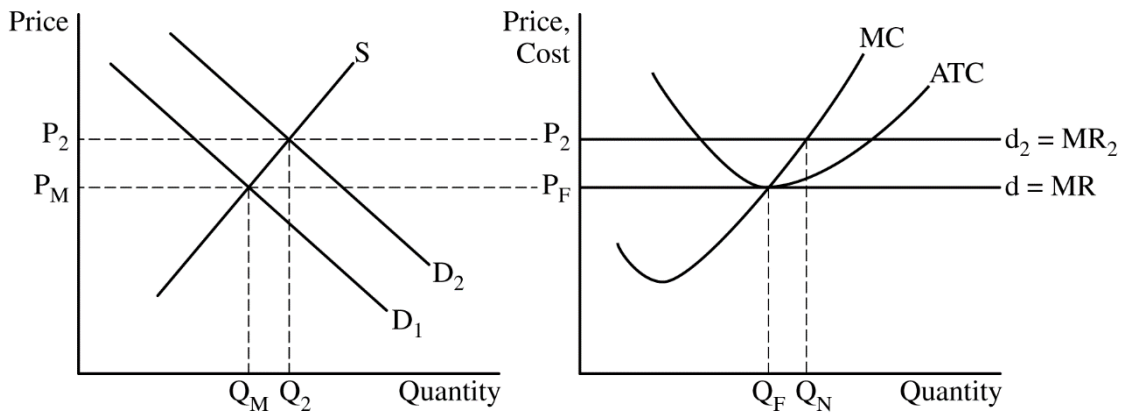


For the fourth point, the firm’s graph must show the average total cost (ATC) curve tangent to the firm’s demand curve at Q_F and show the MC curve passing through the minimum point of the ATC curve. **1 point**



Total for part (a) 4 points

(b) On your market graph from part (a), show a rightward shift in the market demand curve with a higher market price, labeled P_2 , and show an upward shift in the firm’s demand curve with a greater quantity sold by Frank Sugar Co., labeled Q_N . **1 point**

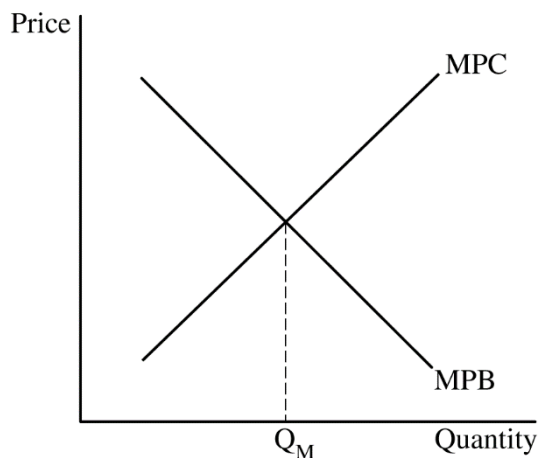


State that the profit earned by Frank Sugar Co. will increase in the short run. **1 point**

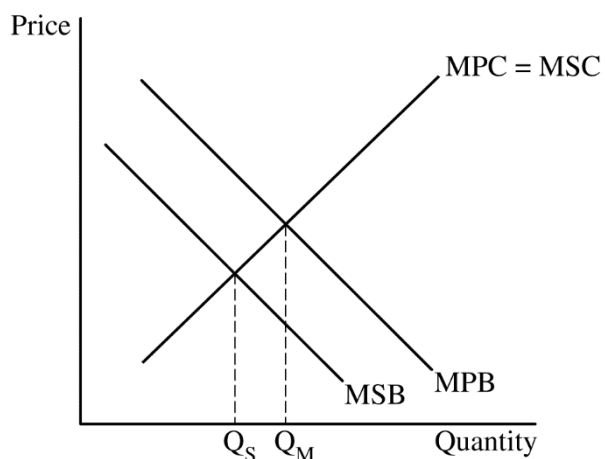
State that the market price in long-run equilibrium will be lower than P_2 and explain that new firms will enter the market, which increases the market supply, lowering the market price back to P_M where firms earn zero economic profit in the long run. **1 point**

Total for part (b) 3 points

- (c) Draw a correctly labeled graph with an upward-sloping supply curve, labeled MPC, a downward-sloping demand curve, labeled MPB, and show the market equilibrium quantity, labeled Q_M at the intersection of the MPB and MPC curves. **1 point**



- For the second point, the graph must show a downward-sloping marginal social benefit (MSB) curve below the MPB curve, label the upward sloping curve $MPC = MSC$, and show the socially optimal quantity, labeled Q_S , at the intersection of the MSB and MSC curves. **1 point**



Total for part (c) 2 points

- (d) State that the government would impose a per-unit tax and explain that the tax would raise the price paid per unit **AND** decrease market equilibrium quantity to move it closer to the socially optimal quantity. **1 point**

Total for question 1 10 points

Question 2: Short**5 points**

- (a) Calculate the consumer surplus in New Zealand before trade as \$4,500 and show your work. **1 point**

$$\text{Consumer Surplus} = \frac{1}{2} \times 300 \times (\$70 - \$40) = \frac{1}{2} \times 300 \times \$30 = \frac{\$9,000}{2} = \$4,500$$

- (b) (i) State that New Zealand will export 400 units of wool. **1 point**

- (ii) State that consumer surplus in New Zealand will decrease and explain with **ONE** of the following: **1 point**

- The domestic price will increase to the world price, which decreases the domestic quantity demanded of wool.
- The consumer surplus decreased from \$4,500 before trade to \$500 after trade.

- (iii) State that total economic surplus in New Zealand will increase by \$4,000 and explain that producer surplus will increase by \$8,000 while consumer surplus will decrease by \$4,000, resulting in an increase in total economic surplus. **1 point**

Total for part (b) 3 points

- (c) State that New Zealand's exports will decrease. **1 point**

Total for question 2 5 points

Question 3: Short**5 points**

(a) State that the firm is experiencing economies of scale and explain that the long-run average total cost (LRATC) curve is downward sloping over the range of 0 to 60 units. **1 point**

(b) State that the price is \$15 and the quantity is 50 units. **1 point**

(c) (i) Calculate the total revenue at the socially optimal quantity as \$600 and show your work. **1 point**

$$\text{Total Revenue} = \text{Price} \times \text{Quantity} = \$10 \times 60 = \$600$$

(ii) Explain that at the socially optimal quantity, the firm is earning negative economic profit in the short run because price is less than average total cost. **1 point**

(iii) Calculate the lump-sum subsidy as \$180 and show your work. **1 point**

$$\text{Lump-sum Subsidy} = (\text{LRATC} - \text{Price}) \times \text{Quantity} = (\$13 - \$10) \times 60 = \$180$$

Total for part (c) 3 points

Total for question 3 5 points
