

2021

AP[®]

 CollegeBoard

AP[®] Microeconomics

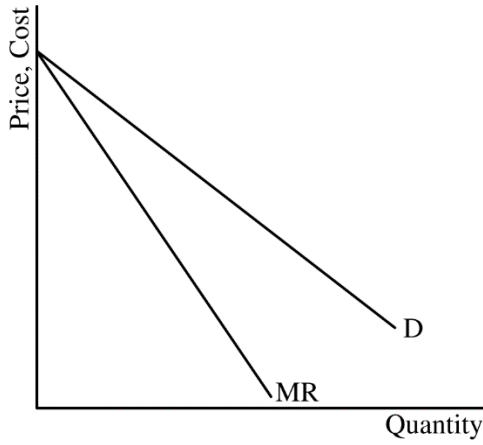
Scoring Guidelines

Set 1

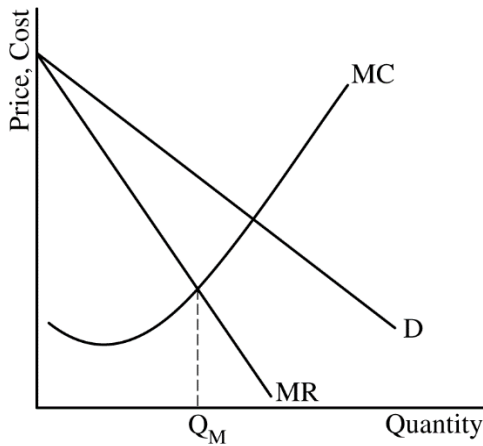
Question 1: Long

10 points

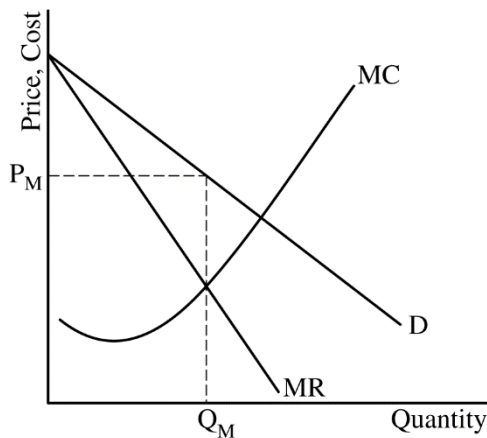
- (a) Draw a correctly labeled graph for SkyRunner Airlines showing downward sloping demand (D) and marginal revenue (MR) curves with the MR curve below the demand curve. **1 point**



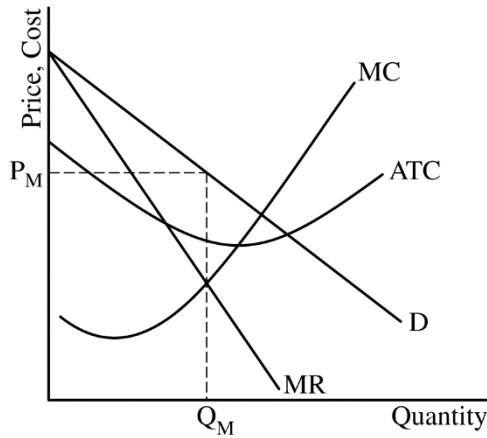
- For the second point, the graph must show the marginal cost (MC) curve and the profit-maximizing quantity, labeled Q_M , where $MR=MC$. **1 point**



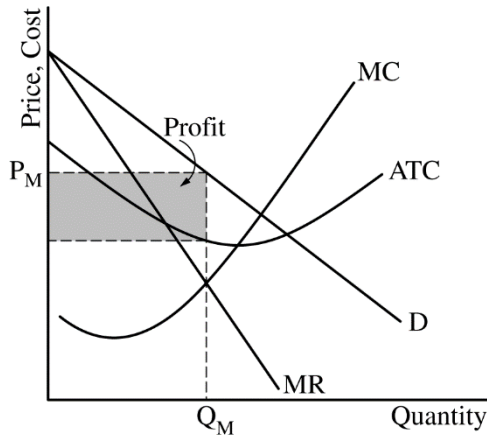
- For the third point, the graph must show the profit-maximizing price, labeled P_M , from the demand curve at Q_M . **1 point**



For the fourth point, the graph must show the ATC curve below the demand curve at Q_M with the MC curve rising and intersecting the ATC at its minimum point. **1 point**

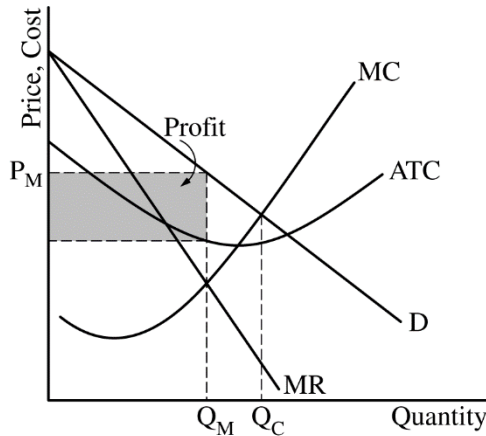


For the fifth point, the graph must show a completely shaded area of profit representing $(P_M - ATC \text{ at } Q_M) \times Q_M$. **1 point**



Total for part (a) 5 points

- (b)** On your graph from part (a), show the quantity that is consistent with the goal of eliminating all deadweight loss as Q_C . **1 point**



- (c) (i)** State that the number of tickets SkyRunner sells will decrease and explain that the entry of new firms will reduce the demand for SkyRunner’s service. **1 point**
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- (ii)** State that the price elasticity of demand for SkyRunner Airlines’ service will increase and explain that the entry of new firms will increase the number of substitutes available to consumers. **1 point**
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- (iii)** State that SkyRunner Airlines’ profit will be zero or decrease toward zero. **1 point**
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- (iv)** State that the deadweight loss will decrease and explain that the entry of new firms increases the total market output (services provided) and moves the output closer to the socially optimal output. **1 point**

Total for part (c) 4 points

Total for question 1 10 points

Question 2: Short**5 Points**

- (a)** Calculate the marginal revenue product of the second worker as \$120 and show your work. **1 point**

$$\text{Marginal Revenue Product} = (20-8)/(2-1) \times \$10 \text{ or } (\$200-\$80)/(2-1) = \$120$$

- (b)** State that Schmitt Inc. will hire 4 workers and explain that Schmitt will not hire the 5th worker because the marginal revenue product of the 5th worker is \$90 $((54-45) \times \$10)$ which is less than the wage of \$100. **1 point**

- (c)** Calculate Schmitt's daily profit as \$0 and show your work. **1 point**

$$\text{Profit} = (\text{TR} - \text{TC}) = (\$10 \times 45) - (\$50 + (4 \times \$100)) = \$450 - \$450 = \$0$$

- (d) (i)** State that the wage will increase. **1 point**

- (ii)** State that the number of workers employed by a typical firm will decrease and explain that the market supply of workers will decrease, which causes the marginal factor cost (marginal resource cost) to increase, leading to a lower quantity of workers for the typical firm where $\text{MRP} = \text{MFC}$. **1 point**

Total for part (d) 2 points**Total for question 2 5 points**

Question 3: Short**5 points**

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

$$\text{Total Revenue} = (P \times Q) = (\$5 \times 50) = \$250$$

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- (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**

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

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

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

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- (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