

eLearneconomics: Revenue curves (1)

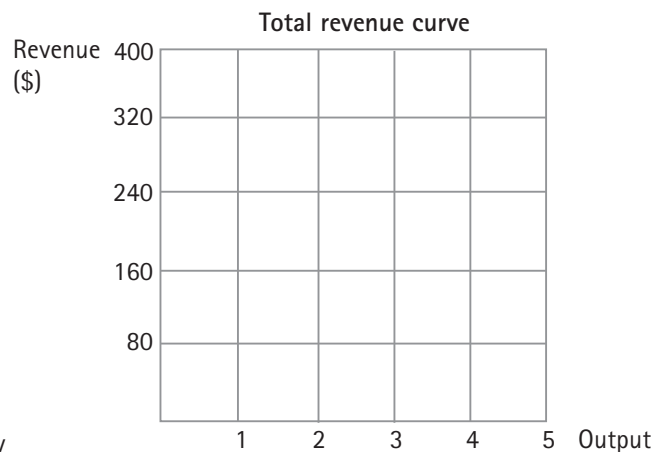
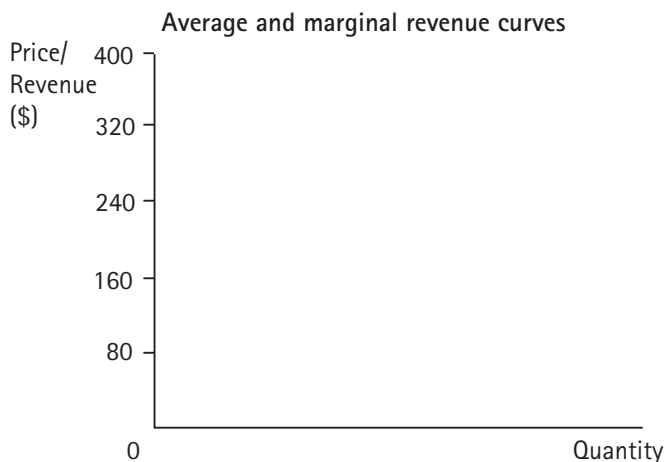


Student response

Assume the market for a product is perfectly competitive and the current market price is \$80.

(a) Complete the table for a perfect competitor and then draw the curve indicated by the title of each graph.

Output	Price (\$)	TR (\$)	AR (\$)	MR (\$)
1				
2				
3				
4				
5				



(b) Explain why a perfect competitor's AR and MR curves are drawn as a horizontal line.

(c) Tick (✓) which of the following ideas are features of perfect competition.

- (i) Homogeneous product ☐
- (ii) Many sellers small in size ☐
- (iii) Weak barriers to entry ☐
- (iv) No barriers to entry ☐
- (v) Price taker ☐
- (vi) Perfect knowledge: by sellers of prices and technology available; by consumers of prices ☐
- (vii) In the long run each firm will produce where $AC = MC$ and face the same cost conditions and produce same level of output as other firms in the industry ☐

eLearneconomics: Revenue curves (1a)

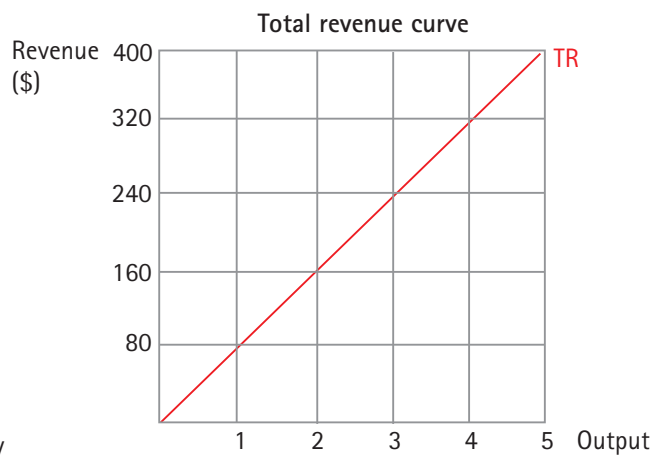
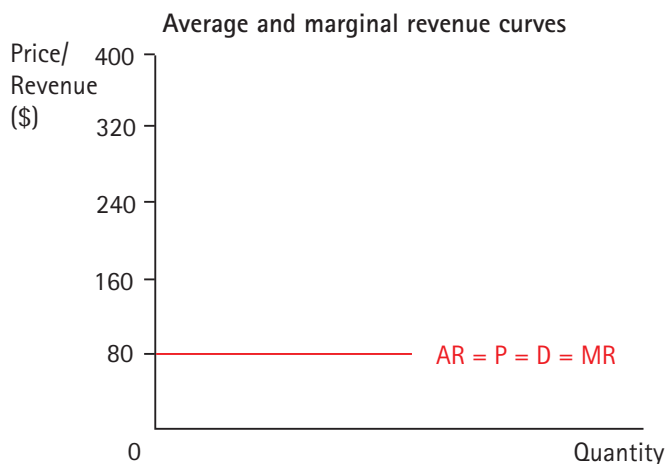
Solutions



Assume the market for a product is perfectly competitive and the current market price is \$80.

(a) Complete the table for a perfect competitor and then draw the curve indicated by the title of each graph.

Output	Price (\$)	TR (\$)	AR (\$)	MR (\$)
1	80	80	80	80
2	80	160	80	80
3	80	240	80	80
4	80	320	80	80
5	80	400	80	80



(b) Explain why a perfect competitor's AR and MR curves are drawn as a horizontal line.

The firm is too small to influence price, it must accept the ruling market price. As a price taker it can sell any amount at the market price therefore $AR = MR$.

(c) Tick (✓) which of the following ideas are features of perfect competition.

- | | | |
|-------|--|-----------|
| (i) | Homogeneous product | <u>✓</u> |
| (ii) | Many sellers small in size | <u>✓</u> |
| (iii) | Weak barriers to entry | <u> </u> |
| (iv) | No barriers to entry | <u>✓</u> |
| (v) | Price taker | <u>✓</u> |
| (vi) | Perfect knowledge: by sellers of prices and technology available; by consumers of prices | <u>✓</u> |
| (vii) | In the long run each firm will produce where $AC = MC$ and face the same cost conditions and produce same level of output as other firms in the industry | <u>✓</u> |

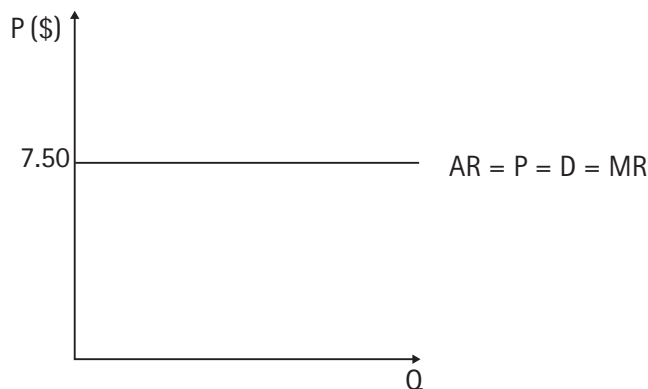
eLearneconomics: Revenue curves (2)



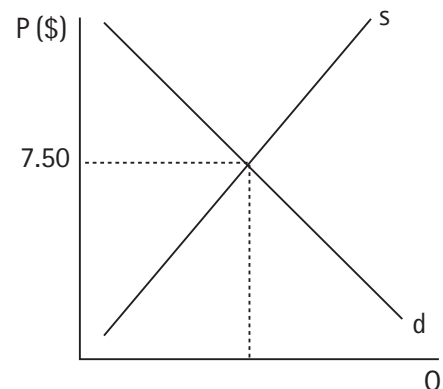
Student response

(a) Use the diagram to answer the questions that follow.

Graph 1: The individual firm



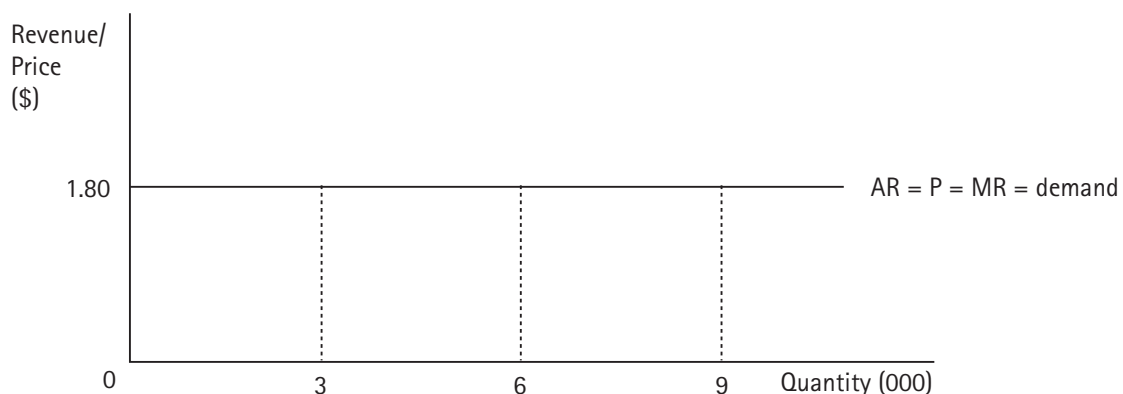
Graph 2: The market (industry)



(i) Explain how Graph 1 and Graph 2 illustrate perfectly competitive competition.

(ii) Explain why the industry demand curve is downward sloping.

(b) (i) Use the diagram to complete the table.



Output	Price (\$)	TR (\$)	AR (\$)
3 000			
6 000			
9 000			

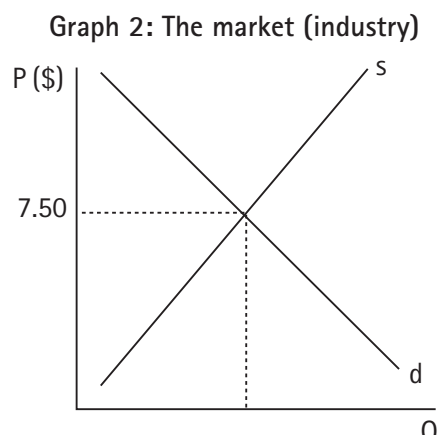
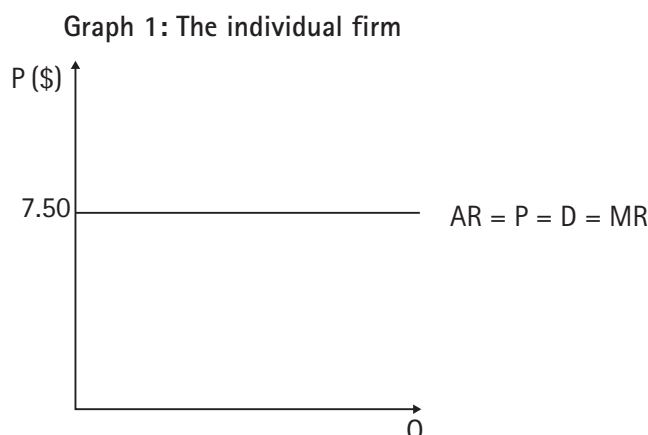
(ii) What do you notice about the price in perfect competition as output increases or decreases? Explain why this is so.

eLearneconomics: Revenue curves (2a)



Solutions

(a) Use the diagram to answer the questions that follow.



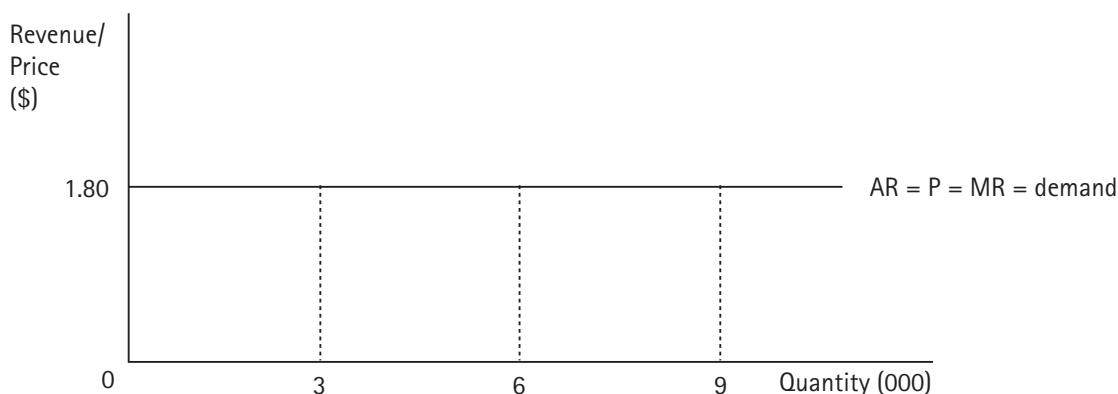
(i) Explain how Graph 1 and Graph 2 illustrate perfectly competitive competition.

The market (demand and supply) in Graph 2 sets the price that firms receive in Graph 1. The horizontal AR curve in Graph 1 shows that the individual firm is a price taker, which is typical of perfect competition.

(ii) Explain why the industry demand curve is downward sloping.

Idea that it represents the sum of all individual consumer demand curves for the good or service at each price.

(b) (i) Use the diagram to complete the table.



Output	Price (\$)	TR (\$)	AR (\$)
3 000	1.80	5 400	1.80
6 000	1.80	10 800	1.80
9 000	1.80	16 200	1.80

(ii) What do you notice about the price in perfect competition as output increases or decreases? Explain why this is so.

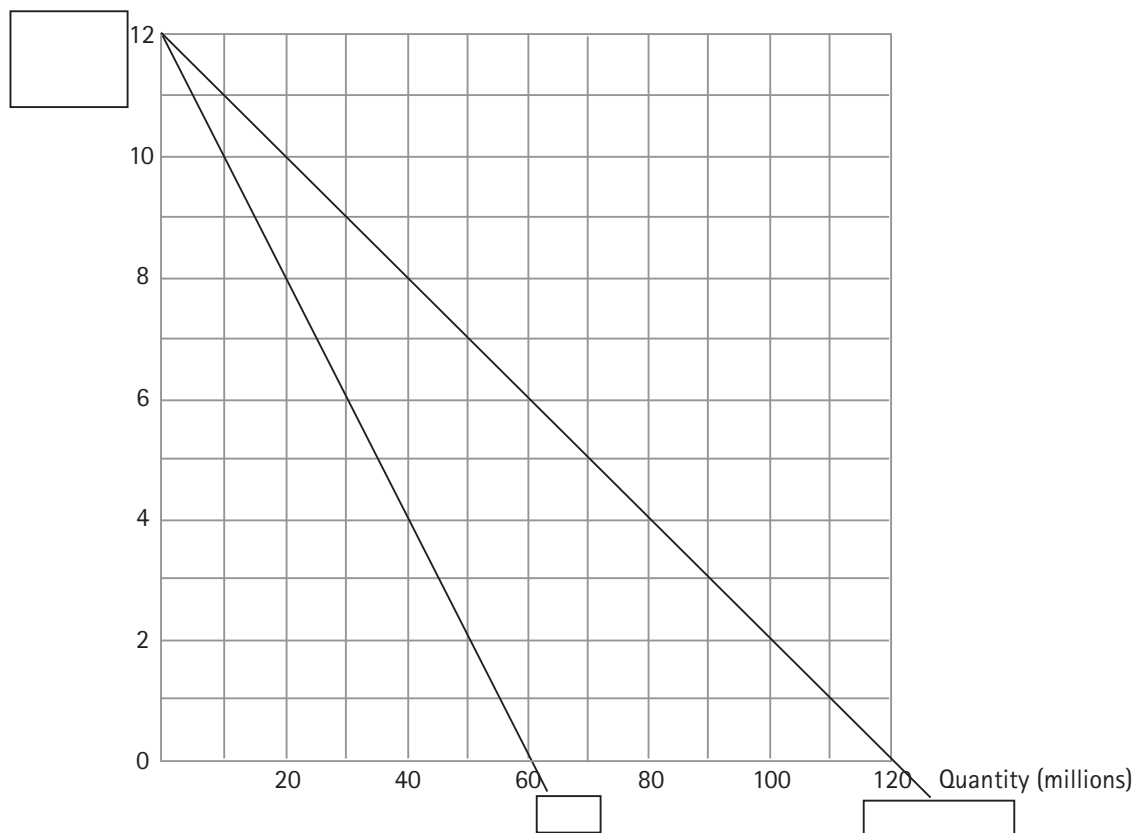
Price does not change as perfect competitors are price takers and must accept the ruling market price; they are too small to influence price.

eLearneconomics: Revenue curves (3)



Student response

Use the graph below to answer the questions that follow.



(a) Label all the curves and axes appropriately, using the small boxes for answers.

(b) Explain how the revenue curves illustrate imperfect competition.

(c) Define marginal revenue.

(d) (i) Complete the table using the information above.

Units	Price (AR) (\$)	Total revenue (TR) (\$)	Marginal revenue (MR) (\$)
20 million			
40 million			
60 million			
80 million			-4

(ii) Indicate at which level of output total revenue is a maximum and describe the relationship between TR and MR at this point.

Output: _____

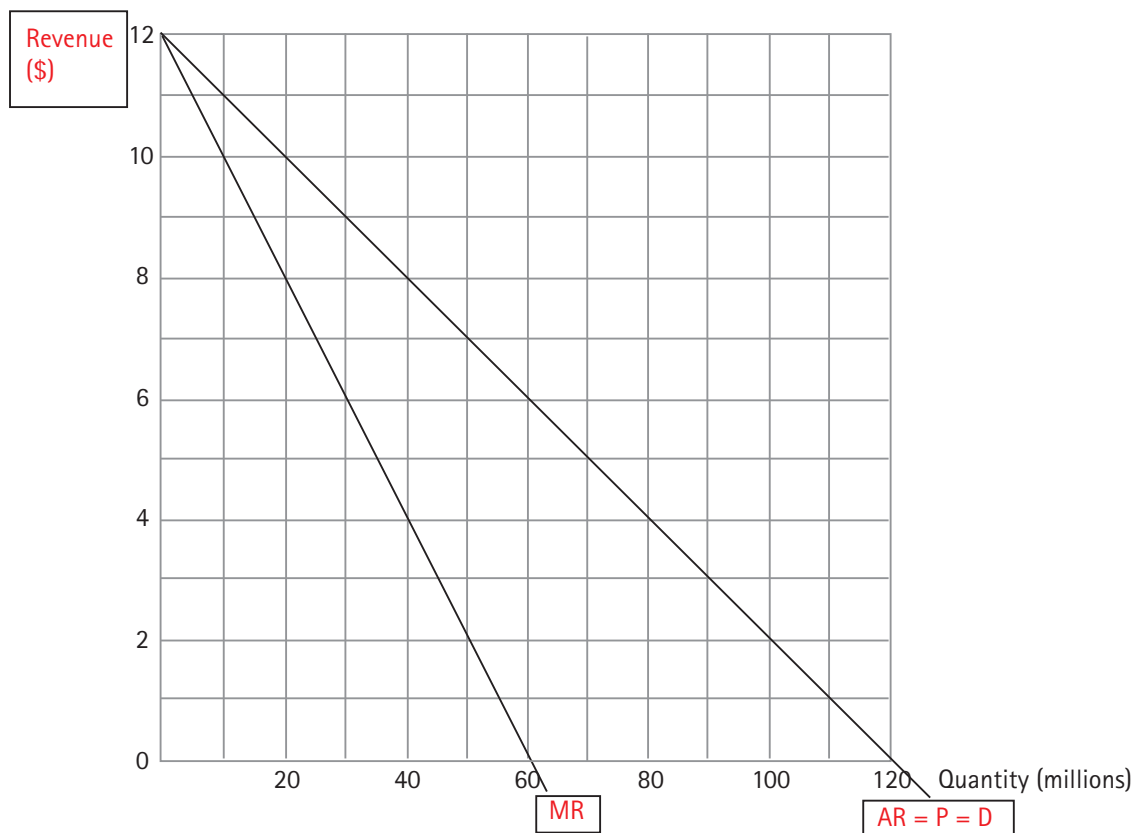
Relationship: _____

eLearneconomics: Revenue curves (3a)

Solutions



Use the graph below to answer the questions that follow.



(a) Label all the curves and axes appropriately, using the small boxes for answers.

(b) Explain how the revenue curves illustrate imperfect competition.

To sell an additional unit the imperfect competitor must lower the price on all units sold, and the

AR > MR.

(c) Define marginal revenue.

The additions to total revenue from increasing sales by one unit.

(d) (i) Complete the table using the information above.

Units	Price (AR) (\$)	Total revenue (TR) (\$)	Marginal revenue (MR) (\$)
20 million	10	200m	8
40 million	8	320m	4
60 million	6	360m	0
80 million	4	320m	-4

(ii) Indicate at which level of output total revenue is a maximum and describe the relationship between TR and MR at this point.

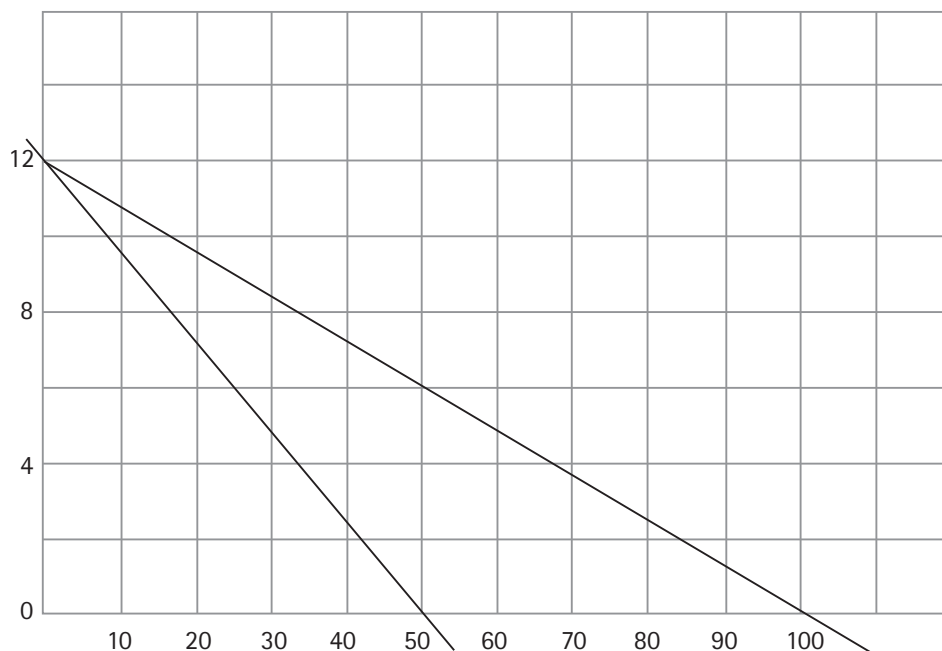
Output: 60 million units

Relationship: When TR is a maximum the MR is zero.



Student response

(a) Label the curves and the axes and then answer the questions that follow.



(b) What kind of demand curve does a monopolist face?

(c) What is the only way a monopolist can increase quantity demanded?

(d) At a price of \$11, how many units can a monopolist sell? What is their total revenue?

Units sold = _____ TR = _____

(e) If the price is lowered to \$6, how many units can the monopolist sell? What is their total revenue?

Units sold = _____ TR = _____

(f) Indicate if the following statements are *correct* or *incorrect* for the imperfect competitor.

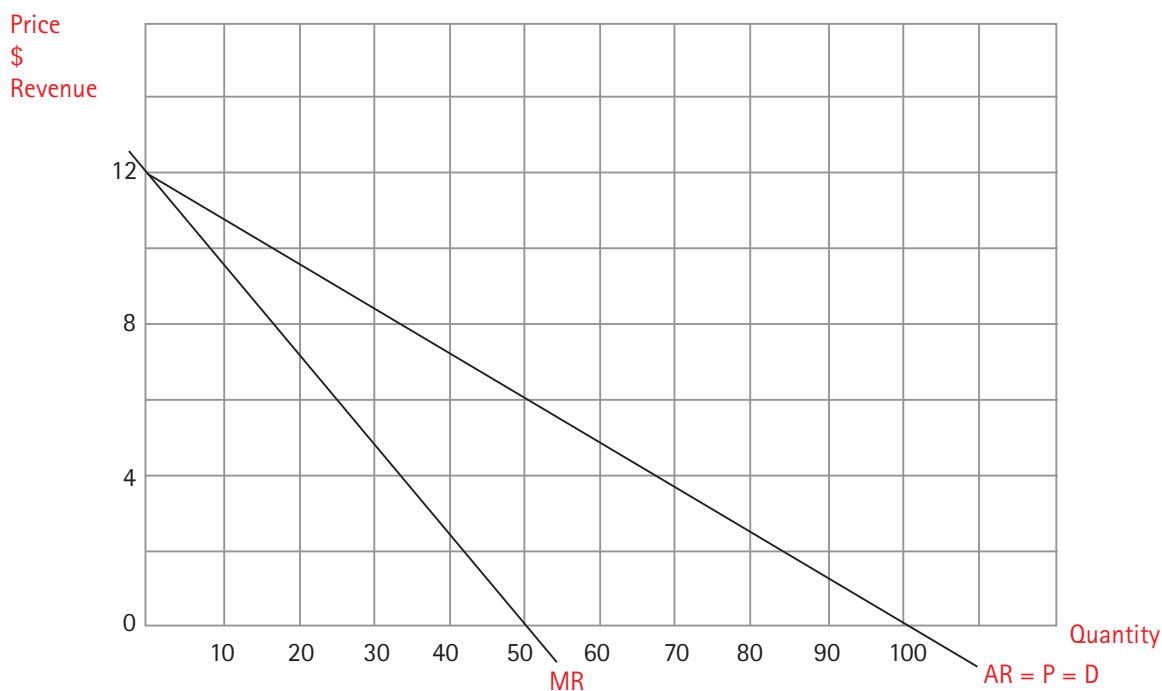
Statement	Correct or incorrect?
(i) When a firm in imperfect competition increases output, price will increase.	
(ii) When a firm in imperfect competition increases output, price will decrease.	
(iii) When an imperfect competitor produces less, then price will decrease.	
(iv) When an imperfect competitor produces less, then price will increase.	

eLearneconomics: Revenue curves (4a)



Solutions

(a) Label the curves and the axes and then answer the questions that follow.



(b) What kind of demand curve does a monopolist face?

Downward sloping.

(c) What is the only way a monopolist can increase quantity demanded?

Lower price.

(d) At a price of \$11, how many units can a monopolist sell? What is their total revenue?

Units sold = 10 TR = \$110

(e) If the price is lowered to \$6, how many units can the monopolist sell? What is their total revenue?

Units sold = 50 TR = \$300

(f) Indicate if the following statements are *correct* or *incorrect* for the imperfect competitor.

Statement	Correct or incorrect?
(i) When a firm in imperfect competition increases output, price will increase.	<i>incorrect</i>
(ii) When a firm in imperfect competition increases output, price will decrease.	<i>correct</i>
(iii) When an imperfect competitor produces less, then price will decrease.	<i>incorrect</i>
(iv) When an imperfect competitor produces less, then price will increase.	<i>correct</i>



Student response

(a) Complete the following statements using the table.

Firm	Price (\$)	MR (\$)	AR (\$)
X	2.50	2.00	2.50
O	2.10	2.10	2.10
N	3.90	4.00	3.90

- (i) In a perfect competition, $P = \underline{\hspace{2cm}} = \underline{\hspace{2cm}} = \text{demand}$.
- (ii) In imperfect competition, $P = \underline{\hspace{2cm}} = \text{demand}$, and it's impossible for MR to be $\underline{\hspace{2cm}}$ than $\underline{\hspace{2cm}}$.
- (iii) In the table, $\underline{\hspace{2cm}}$ is a perfect competitor, because $\underline{\hspace{2cm}}$.
- (iv) In the table, the firm $\underline{\hspace{2cm}}$ is an imperfect competitor, because $\underline{\hspace{2cm}}$.
- (v) In the table, firm $\underline{\hspace{2cm}}$ revenue structure is impossible because $\underline{\hspace{2cm}}$.

(b) Indicate if the following statements are correct or incorrect.

Statement	Correct or incorrect?
(i) To sell an additional unit a monopoly or imperfect competition must lower price.	
(ii) In imperfect competition, Price = AR.	
(iii) In imperfect competition, Price > MR.	
(iv) In imperfect competition, Price = MR.	
(v) In imperfect competition, MR > Price.	
(vi) An oligopoly has weak barriers to entry.	
(vii) Imperfect competitors sell an identical product.	
(viii) Perfect competitors are too large to influence price.	
(ix) In perfect competition, $AR = P = D = MR$.	
(x) For a firm in perfect and imperfect competition, its demand curve is equal to its AR curve.	
(xi) MR must be less than price in perfect competition.	
(xii) MR must be less than price in imperfect competition.	
(xiii) $AR = \text{Price}$ in both perfect and imperfect competition.	
(xiv) The demand curve for firms in perfect and imperfect competition equals the MR curve.	
(xv) For a monopolist, the MR curve cuts the output axis exactly two thirds of the way between the origin and where the AR cuts that axis.	

eLearneconomics: Revenue curves (5a)

Solutions



(a) Complete the following statements using the table.

Firm	Price (\$)	MR (\$)	AR (\$)
X	2.50	2.00	2.50
O	2.10	2.10	2.10
N	3.90	4.00	3.90

- (i) In a perfect competition, $P = \text{AR} = \text{MR} = \text{demand}$.
- (ii) In imperfect competition, $P = \text{AR} = \text{demand}$, and it's impossible for MR to be **greater** than **AR**.
- (iii) In the table, **O** is a perfect competitor, because $\text{AR} = \text{MR}$.
- (iv) In the table, the firm **X** is an imperfect competitor, because $\text{AR} > \text{MR}$.
- (v) In the table, firm **N** revenue structure is impossible because $\text{MR} > \text{AR}$.

(b) Indicate if the following statements are correct or incorrect.

Statement	Correct or incorrect?
(i) To sell an additional unit a monopoly or imperfect competition must lower price.	correct
(ii) In imperfect competition, Price = AR.	correct
(iii) In imperfect competition, Price > MR.	correct
(iv) In imperfect competition, Price = MR.	incorrect
(v) In imperfect competition, MR > Price.	incorrect
(vi) An oligopoly has weak barriers to entry.	incorrect
(vii) Imperfect competitors sell an identical product.	incorrect
(viii) Perfect competitors are too large to influence price.	incorrect
(ix) In perfect competition, $\text{AR} = P = D = \text{MR}$.	correct
(x) For a firm in perfect and imperfect competition, its demand curve is equal to its AR curve.	correct
(xi) MR must be less than price in perfect competition.	incorrect
(xii) MR must be less than price in imperfect competition.	correct
(xiii) $\text{AR} = \text{Price}$ in both perfect and imperfect competition.	correct
(xiv) The demand curve for firms in perfect and imperfect competition equals the MR curve.	incorrect
(xv) For a monopolist, the MR curve cuts the output axis exactly two thirds of the way between the origin and where the AR cuts that axis.	incorrect