

NCERT Solutions for Class-XII Economics (Micro)

Chapter-6

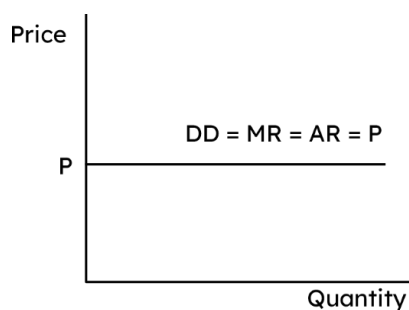
Microeconomics Solutions for Class 12 Chapter 6

Q1. What would be the shape of the demand curve so that the total revenue curve is

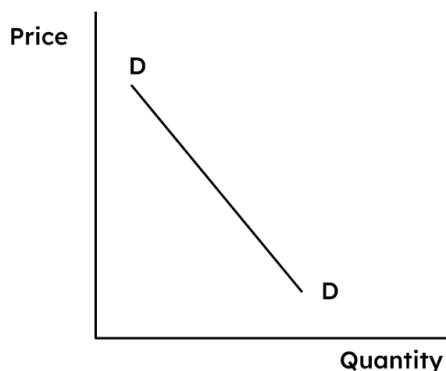
(a) a straight line that goes straight to where it came from?

(b) a horizontal line?

Sol. (a) The slope of the quest curve will be a horizontal line parallel to the x-axis when the revenue curve slows down a straight line



(b) The demand curve will be lower when the income curve is a horizontal line



Q2. From the schedule provided below calculate the total revenue, demand curve and the price elasticity of demand:

Quantity	1	2	3	4	5	6	7	8	9
Marginal Revenue	10	6	2	2	2	0	0	0	-5

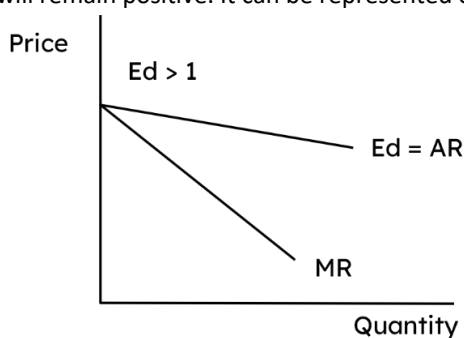
Sol. The solution to this question is as follows:

Quantity	MR	TR	$AR = \frac{TR}{Q}$	$Ed = \frac{\Delta Q}{\Delta P} \times \frac{P}{Q}$
1	10	10	10	-
2	6	$10 + 6 = 16$	8	5
3	2	$16 + 2 = 18$	6	2

4	2	$18 + 2 = 22$	5	2
5	2	$20 + 2 = 22$	4.5	2.5
6	0	$22 + 0 = 22$	3.6	1
7	0	22	3.1	1.2
8	0	22	2.7	1.1
9	-5	$22 - 5 = 17$	1.9	0.38

Q3. What is the value of the MR when the demand curve is elastic?

Sol. MR and flexibility are required in this relationship where $MR = P (1 - 1 / e_d)$
Therefore when the demand curve will have an extension i.e. ($e_d > 1$), the value of $1 / e_d$ will always be less than 1 and thus MR will remain positive. It can be represented on the graph as:



Q4. A monopoly firm has a total fixed cost of Rs 100 and has the following demand schedule:

Quantity	1	2	3	4	5	6	7	8	9	10
Price	100	90	80	70	60	50	40	30	20	10

Find the short run equilibrium quantity, price and total profit. What would be the equilibrium in the long run? In case the total cost is Rs 1000, describe the equilibrium in the short run and in the long run.

Sol. The solution to this question is as follows:

Quantity (Q)	Price (P) (Rs)	TR = P × Q (Rs)	TFC	TC	Total Profit = TR – TC
1	100	100	100	100	0
2	90	180	100	100	80
3	80	240	100	100	140
4	70	280	100	100	180
5	60	300	100	100	200
6	50	300	100	100	180
7	40	280	100	100	140
8	30	240	100	100	80
9	20	180	100	100	0
10	10	100	100	100	

We Know Total Cost (TC) = TFC + TVC Allow the total factory cost of 0
Profits will be higher when TR (Total Income) is higher and according to the table 6 exit unit that provides maximum profit.

So the average price of Short run is 50. Now let's calculate the profit

$$\text{Profit} = \text{TR} - \text{TC}$$

$$= 300 - 100$$

$$= 200$$

In short, the rate at which the total income is used to determine the equal value, so 300 will be the equal value.

Now, calculate the profit over time

$$\text{Profit} = \text{Income} - \text{Total Cost or TR} - \text{TC}$$

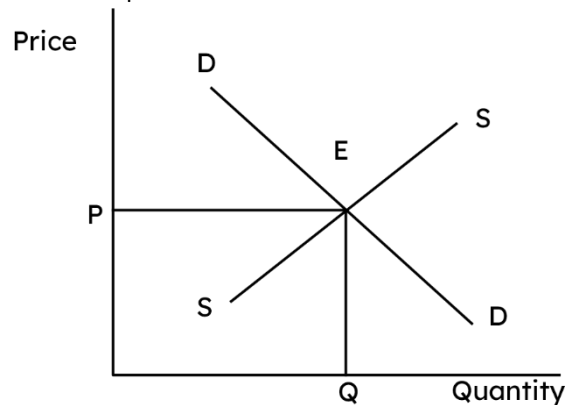
$$= 300 - 1000$$

$$= -700$$

According to the numbers, the company loses a long time.

- Q5.** If the monopolist firm of Exercise 3, was a public sector firm. The government set a rule for its manager to accept the government fixed price as given (i.e. to be a price taker and therefore behave as a firm in a perfectly competitive market), and the government decide to set the price so that demand and supply in the market are equal. What would be the equilibrium price, quantity and profit in this case?

- Sol.** A fortune-telling firm if asked to accept fixed rates by the government will behave like a fully competitive firm. The price set by the government will make for demand and provide equity and the firm will receive normal or non-profit economic benefits.



So the equilibrium price = P Equilibrium quantity = Q

Profit = Normal Profit

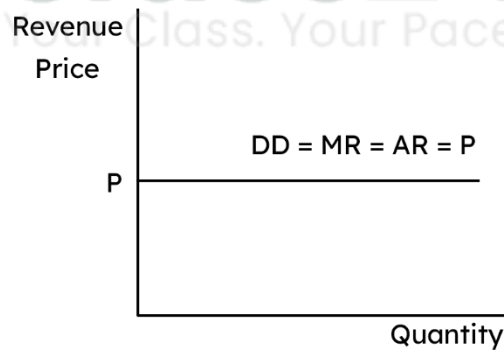
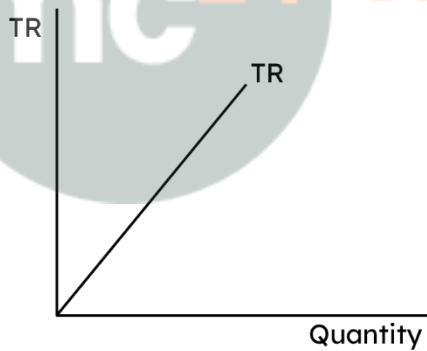
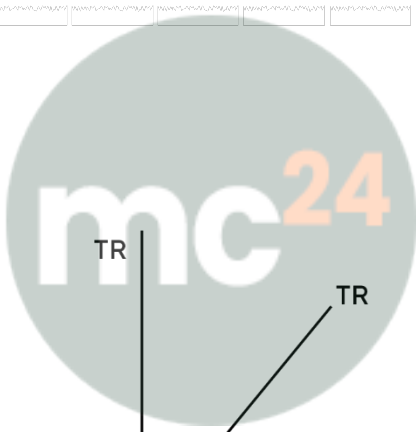
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- Q6.** Comment on the shape of the MR curve in case the TR curve is a

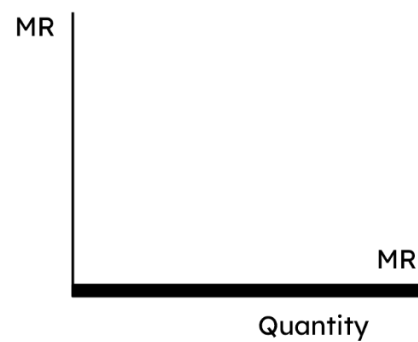
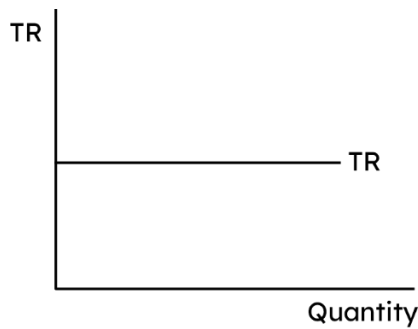
(i) a straight line in a straight line

(ii) a straight horizontal line

- Sol.** (i) The MR curve will be a horizontal line when the TR curve is a straight line. In the case of complete competition the MR and the search curve will be the same as the constant AR at different output levels.



(ii) MR will be zero if the TR curve is a straight horizontal line. The horizontal slope of the TR curve represents the fact that the MR (marginal revenue) is zero. It can be represented by photos as follows:



Q7. The market demand curve for a commodity and the total cost for a monopoly firm producing the commodity is given by the schedules below.

Quantity	0	1	2	3	4	5	6	7	8
Price	52	44	37	3	26	22	19	16	13

Quantity	0	1	2	3	4	5	6	7	8
Total Cost	10	60	90	100	102	105	109	115	125

Use the information provided to calculate the following:

(a) The MR and MC schedules

(b) The quantities for which MR and MC are equal

(c) The equilibrium quantity of output and the equilibrium price of the commodity

(d) The total revenue, total cost and total profit in the equilibrium

Sol. (a) The solution to this is as follows

Quantity (units)	Price/AR (Rs.)	TR = P × Q (Rs)	MN = TR _n - TR _{n-1} (Rs)	TC (Rs)	MC = TC _n - TC _{n-1} (Rs)
0	52	0	—	10	—
1	44	44	44	60	50
2	37	74	30	90	40

3	31	93	19	100	10
4	26	104	11	102	2
5	22	110	6	105	3
6	19	114	4	109	4
7	16	112	-2	115	6
8	13	104	-8	125	10

(b) UMR and MC are equal in unit 6 output.

(c) $MR = MC$ in the case of equity, according to table 6 output unit where $MR = MC$. So the average price is 19.

(d) As the 6th exit unit is where equity is achieved then $TR = 114$, $TC = 109$ and profit = $114 - 109 = 5$

Q8. Will the monopolist firm continue to produce in the short run if a loss is incurred at the best short run level of output?

Sol. (i) If the price of the product is less than the minimum cost, the company will incur losses in the short term.
(ii) If the price falls below the variable cost ratio, the monopolist firm will stop all production.
(iii) If the price is between the average variable cost and medium cost, the company will continue to produce

Q9. Explain why the demand curve facing a firm under monopolistic competition is negatively sloped.

Sol. A firm in monopolistic competition sells products that are differentiated from its competitor's product. Therefore, the monopolistic firm will lower the cost to increase the demand. Because the differentiated products can be substituted for each other, the demand for commodities produced under monopolistic competition tends to be elastic. This elastic demand is the reason why the demand curve is negatively sloped for a firm under monopolistic competition.

Q10. What is the reason for the long run equilibrium of a firm in monopolistic competition to be associated with zero profit?

Sol. A firm in monopolistic competition sells products that are differentiated from its competitor's product. In other words, the products sold by a firm in monopolistic competition are unique and only have partial competition. Because of the free entry and exit of firms, the long-run equilibrium price will be the same and the firm will earn zero profit.

Q11. List the three different ways in which oligopoly firms may behave.

Sol. Oligopoly firms may behave in the following ways:

1. Firms realize that raging a price war will not sustain in the long run and therefore the main focus is on advertising the products and trying to

differentiate their product from competitors so that it strikes a chord with the audiences.

2. Some firms may join hands to form cartels to maximise profit among themselves and capture a large part of market due to the combined effort.
3. Firms may decide on the quantity of output to be produced so that they can earn the maximum benefits, with a mutual agreement with other firms in limiting produce as per agreement.

Q12. If duopoly behaviour is one that is described by Cournot, the market demand curve is given by the equation $q = 200 - 4p$ and both the firms have zero costs, find the quantity supplied by each firm in equilibrium and the equilibrium market price.

Sol. As per the question

$$q = 200 - 4p$$

The demand curve being a straight line and firms having zero costs, a duopolistic firm finds it best to supply goods amounting to half of the maximum demand in order to gain most profit.

Therefore at $P = 0$

Market demand is $q = 200 - 4p$

$$= 200 - 4(0)$$

$$= 200$$

If firm B is not involved in any production. Then market demand for A will be 200 units. Accordingly the supply will be $200/2 = 100$ units (half of maximum market demand)

Firm B will face a market demand of $200 - 100 = 100$ units Supply will be $100/2 = 50$ units

As firm B produced 50 units, A needs to have a demand of $200 - 50 = 150$ units

A will produce $150/2 = 75$ units in order to earn profits

Round	Firm	Quantity Supplied
1	B	0
2	A	$\frac{1}{2} \times 200 = \frac{200}{2} = 100$
3	B	$\frac{1}{2} \left[200 - \frac{1}{2} \times 200 \right] = \frac{200}{2} - \frac{200}{4}$
4	A	$\frac{1}{2} \left[200 - \frac{1}{2} \times \left(200 - \frac{1}{2} \times 200 \right) \right] = \frac{200}{2} - \frac{200}{4} + \frac{200}{8}$
5	B	$\frac{1}{2} \left\{ 200 - \frac{1}{2} \left[200 - \frac{1}{2} \left(200 - \frac{1}{2} \times 200 \right) \right] \right\} = \frac{200}{2} - \frac{200}{4} + \frac{200}{8} - \frac{200}{16}$

At equilibrium both the firms A and B will have an output of $200/3$ units

$$\text{Market supply will be} = \frac{200}{3} + \frac{200}{3} = \frac{400}{3}$$

Now Equilibrium output is $400/3$

Calculating equilibrium price $q = 200 - 4p$

$$4p = 200 - q$$

$$P = 50 - q/4$$

$$p = 50 - \frac{1}{4} \times \frac{400}{3}$$

$$p = 50 - 100/3$$

$$= \frac{150 - 100}{3} = \frac{50}{3}$$

Therefore, the equilibrium price is $50/3$

Q13. What is meant by prices being rigid? How can oligopoly behaviour lead to such an outcome?

Sol. Price rigidity refers to the situation in which price does not change with respect to demand. It may happen that a firm changes its price by more units to earn high profits, similar firms in the same industry will not do the same due to the fear of losing out profit. While a firm if it reduces the price to increase sales and profits. The other firm will soon follow the steps to share total market sales. Therefore oligopoly will lead to price rigidity in the market.



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