

# NCERT SOLUTIONS

CLASS - 12th



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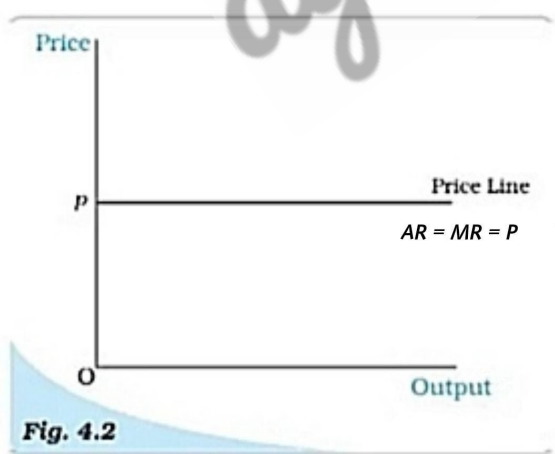
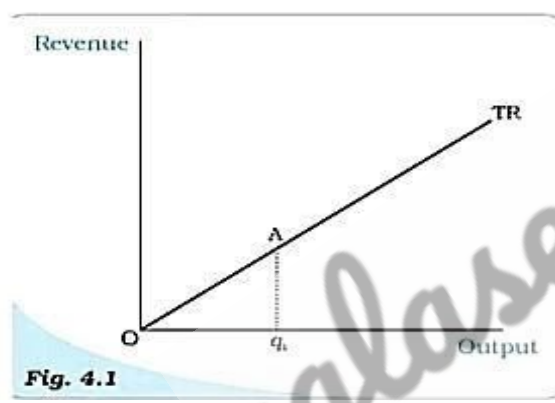
Subject : Economics

Chapter : 6

Chapter Name : Non-Competitive Market

Q1 What would be the shape of the demand curve so that the total revenue curve is a) a positively sloped straight line passing through the origin? B) a horizontal line?

Answer. a) Demand curve will be a horizontal straight line parallel to the x-axis when total revenue curve is a positively sloped straight line.



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b) When Total revenue curve is a horizontal line, it indicated TR remains same at all level of output. Which mean with fall in price there will be a rise in output. Thus, the demand curve will slope downward from left to right.

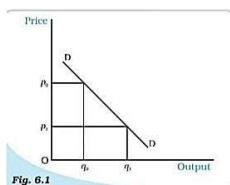


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Page : 100 , Block Name : Exercises

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

Q	1	2	3	4	5	6	7	8	9
MR	10	6	2	2	2	0	0	0	-5

Answer.

Q	MR	TR	Demand Curve $\frac{TR}{Q} = AR$	Price Elasticity
1	10	10	10	-
2	6	16	8	$(1 \div 2) \times (10 \div 1) = 5$
3	2	18	6	$(1 \div 2) \times (8 \div 2) = 2$

4	2	20	5	$(1 \div 1) \times (6 \div 3) = 2$
5	2	22	4.4	$(1 \div 0.6) \times (5 \div 4) = 2.09$
6	0	22	3.7	$(1 \div 0.7) \times (4.4 \div 5) = 1.26$
7	0	22	3.1	$(1 \div 0.6) \times (3.7 \div 6) = 1.03$
8	0	22	2.8	$(1 \div 0.3) \times (3.1 \div 7) = 1.48$
9	-5	17	1.9	$(1 \div 0.9) \times (2.8 \div 8) = 0.39$

AR=Price

$$\text{Price Elasticity} = \frac{\Delta Q}{\Delta P} \times \frac{P_0}{Q_0}$$

Page : 100 , Block Name : Exercises

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

Answer. When demand curve is elastic ,it means elasticity of demand is greater than 1 so MR will be positive.

$$MR = P \times \left(1 - \frac{1}{e_d}\right)$$

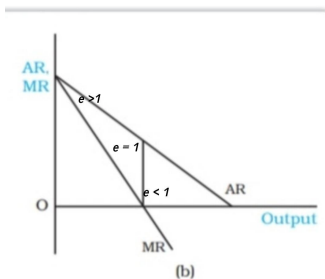


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Page : 100 , Block Name : Exercises

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 was Rs 1000, describe the equilibrium in the short run and in the long run.

Answer.

Quantity	Price	$TR = P \times Q$
1	100	100
2	90	180
3	80	240

4	70	280
5	60	300
6	50	300
7	40	280
8	30	240
9	20	180
10	10	100

TR is maximum at 6<sup>th</sup> unit of output, profit will be maximum here. Equilibrium Quantity= 6 unit of output

Equilibrium Price= 50

Profit=TR-TC=300-100=200

Now, if the total cost is 1000, firm incurs loss as total cost is greater than the total revenue.

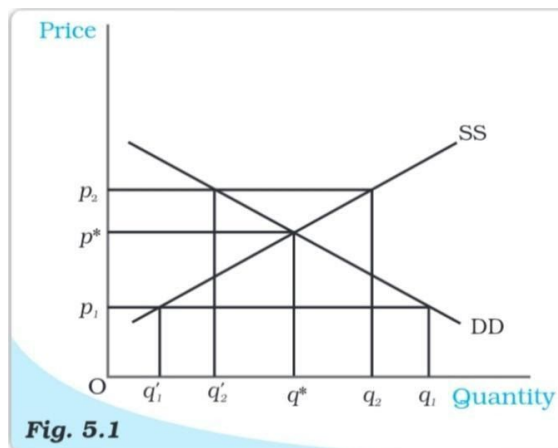
Loss=TC-TR=1000-300=700

The firm will incur loss in short run production and will stop production in the long run.

Page : 101 , Block Name : Exercises

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 decided 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.

Answer. When the firm becomes price taker as in a perfectly competitive market, equilibrium price and quantity is determined by the interaction of demand and supply curve in the market.



Here  $p^*$  and  $q^*$  will be the equilibrium price and quantity respectively and the firm will earn zero profit because in perfectly competitive market firm earns only normal profits.

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Page : 101 , Block Name : Exercises

Q6 Comment on the slope of MR curve in case the TR curve is a

i) Positively sloped straight line.

ii) Horizontal straight line.

Answer.

i) When TR curve is positively sloped straight line, MR curve will be horizontal line parallel to the x-axis.

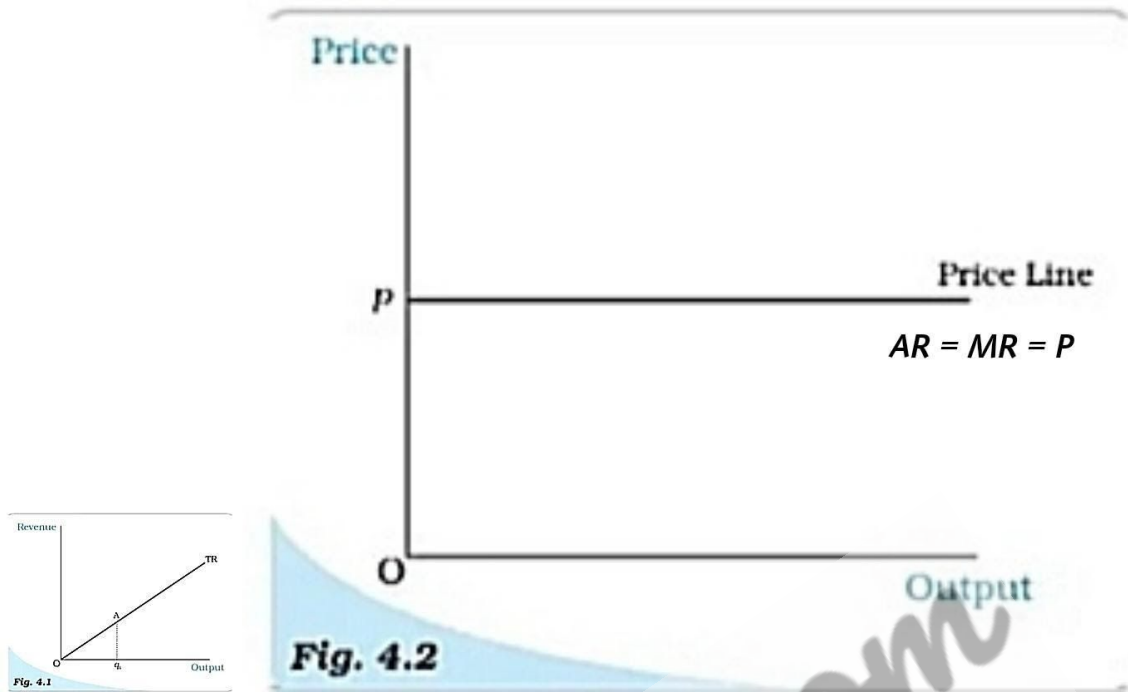


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ii) When TR curve is a horizontal straight line it implies TR is constant at all levels of output MR will be zero.

Page : 101 , Block Name : Exercises

Q7 The market demand curve for a commodity and the total cost for a monopoly firm producing the commodity is given by the schedule below. Use the following information to calculate-

i) MR and MC schedule

ii) The quantities for which MR and MC are equal

iii) the equilibrium quantity of output and the equilibrium price of commodity



iv) the Total revenue, total cost and total profit in equilibrium.

Quantity	0	1	2	3	4	5	6	7	8
Price	52	44	37	31	26	22	19	16	13
TC	10	60	90	100	102	105	109	115	125

Answer.

Quantity	Price = AR	TC	TR	MR	MC
0	52	10	0	-	-
1	44	60	44	44	50
2	37	90	74	30	30
3	31	100	93	19	10
4	26	102	104	11	2
5	22	105	110	6	3
6	19	109	114	4	4
7	16	115	112	-2	6
8	13	125	104	-8	10

Where,

$$MR = TR_{n+1} - TR_n$$

$$MR = TC_{n+1} - TC_n$$

ii) MR and MC are equal at 2<sup>nd</sup> and 6<sup>th</sup> unit of output.

iii) Equilibrium quantity of output= 6 unit and equilibrium price of commodity is 19, because at 6<sup>th</sup> unit of output both the conditions of equilibrium are fulfilled i.e. a) MR is equal to MC and b) MC intersects MR curve from below.

It is so because the producer can earn profits after the 2nd unit of output and will maximise profits at the 6th unit after which he will incur losses only. So, his equilibrium is obtained at 6th unit of output.

iv) At equilibrium,

Total Revenue=114

Total Cost=109

Total Profit= TR-TC=114-109=5

Page : 101 , Block Name : Exercises

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?

Answer. In the short run, following two cases determine whether the monopolist firm should continue to produce:

i) If at the level of output MC curve cuts MR curve from above, the firm will continue to produce in the short run because beyond that level of output, firm may earn profit as MC is sloping downwards.

ii) If at the level of output, MC curve cuts MR from below, the firm will stop production in the short run if firm incurs loss, because MC will be upward sloping and will be greater than MR and firm will continue to incur loss.

Page : 101 , Block Name : Exercises

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

Answer. Under monopolistic competition, in order to increase the demand, the firm has to reduce the price. Hence, monopoly firm faces a downward sloping demand curve.

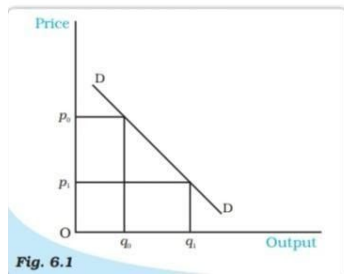


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When price is  $p_0$ , demand is  $q_0$  unit of goods. To increase the demand to  $q_1$  units, price falls to  $p_1$ . Thus demand curve is negatively sloped as more units of commodities can be sold only at a lower price.

Page : 101 , Block Name : Exercises

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

Answer. In monopolistic firms, the number of firms is large and free entry and exit is permitted. So in the short run if any firm earns supernormal profit, it attracts new firms to enter the market. Thus supply will increase whereas demand remains constant. As a result, the price will fall up to the point when firm start earning normal profit.

Similarly, in the short run, some firms incur loss. They will exit the market. Hence, supply will decrease and the demand will remain constant. As a result of which price will rise and continue to rise until all the firms start earning normal profits.

Hence, we see due to free entry and exit, firms in the monopolistic competition earns zero profit in the long run.

Page : 101 , Block Name : Exercises

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

Answer. Three different ways in which oligopoly firms may behave are-

- i) Firms could decide to collaborate to maximize the collective profit.
- ii) Each of the two firms decides how much quantity to produce and should not change the quantity supplied. Firms realize that competition under price-cutting is harmful for their own profits.
- iii) The market price does not move freely in response to change in demand in case of oligopoly market.

Page : 101 , Block Name : Exercises

Q12 If duopoly behavior is one that is described by cornet, the market demand curve is given by the equation ( $q=200-4p$ ) and both the firms have zero cost, find the quantity supplied by each firm in equilibrium and the equilibrium market place.

Answer. The market demand of the two firms is  $200 - 4p$ .

At price = 0, the market demand will be  $200 - 4 \times 0 = 200$ .

So, the firm A will supply half of the demanded quantity

$$= \frac{1}{2} \times 200 = 100 \text{ units.}$$

Again, the demand faced by firm B =  $200 - 100 = 100$  units.

So, it will supply  $\frac{1}{2} \times 100 = 50$  units.

Firm A will supply  $\frac{1}{2} \times (200 - 50) = 75$  units.

This process goes on and can be represented as -

Firm	Quantity supplied
A	$\frac{1}{2} \times 200 = 200/2 = 100$ units
B	$\frac{1}{2} \times (200 - \frac{1}{2} \times 200) = 200/2 - 200/4 = 50$ units
A	$\frac{1}{2} \times (200 - \frac{1}{2} (200 - \frac{1}{2} \times 200)) = 200/2 - 200/4 + 200/8 = 75$ units.
B	$\frac{1}{2} \times \{200 - [\frac{1}{2} \times (200 - \frac{1}{2} (200 - \frac{1}{2} \times 200))]\} = 200/2 - 200/4 + 200/8 - 200/16 = 62.5$ .

In this way, the production of firm A is

$100 + 75 + \dots$  (calculated using the above explained algorithm)

The equilibrium quantity can be calculated as -

$$100 \div (1 + 1 \div 2) = 100 \div 3/2 = 200/3$$

The production of firm B is

$50 + 62.5 + \dots$  (calculated using the above explained algorithm)

The equilibrium quantity can be calculated as -

$$100 \div (1 + 1 \div 2) = 100 \div 3/2 = 200/3.$$

Hence the equilibrium quantity supplied in the market =  $200/3 + 200/3 = 400/3$ .

Now, we know that  $q = 200 - 4p$

$$4p = 200 - q$$

$$4p = 200 - 400/3$$

$$4p = 200/3$$

$$p = 50/3.$$

Page : 101 , Block Name : Exercises

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

Answer. Price being rigid meant that despite change in demand and cost, prices tend to be fixed or constant.

If the firms in an oligopoly market decide to compete with each other on the basis of price, then if one firm lowers the price below other firms to attract customers, the other firms would retaliate by doing the same. So the market price keeps falling as long as firms keep undercutting each other's prices. So the firms generally don't opt for this way.

Rather, the firms mutually decide a price at which they will sell their produce and this price isn't altered by any of the firms. Hence, it leads to price rigidity. This price is changed only due to change in certain market conditions.

Page : 101 , Block Name : Exercises

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