

Chapter - 1

One Market, Revenue and Revenue Curve

A. Very short answer questions (For 1 mark)

i. Define market.

⇒ Market is a system where buyers and sellers come into contact for the transactions of goods and services.

ii. Define perfectly competitive market.

⇒ Perfectly competitive market is a market structure where a large number of sellers sell homogenous products to a large number of buyers. In this market, there is complete absence of control over price by an individual firm.

iii. Define imperfectly competitive market.

⇒ A type of market structure that does not operate under the rules of perfect competition is called imperfectly competitive market. In this market, the number of sellers or firms is less than the perfect competition. Different prices are charged for similar types of products and the seller determines the price of their product by themselves.

iv. What is the meaning of a monopoly market?

⇒ Monopoly market is a market structure in which there is a single seller of a product and large number of buyers in the market. In other words, monopoly is the control over the supply of a product and, therefore, over the price by a single firm.

v. How total revenue (TR) is calculated?

⇒ Total revenue for each level of output sale can be calculated by multiplying price (P) by the corresponding quantity (Q), which the firm can sell.

$$TR = P \times Q$$

vi. State the meaning of marginal revenue.

⇒ The additional revenue earned by a firm or an industry by selling one or more unit of output is called marginal revenue. It is also defined as the additional revenue on total revenue added by the sale of one additional unit of ~~the~~ the product.

vii. Define average revenue.

⇒ Average revenue is referred to as the revenue that is earned per unit of output. In other words, it is the revenue that is obtained by the seller on selling each unit of the commodity. Average Revenue of a business is obtained by dividing the total revenue with the total output.

viii. State the nature of TR curve under perfect competition market.

⇒ The nature of TR Curve under perfect competition are listed below:

- TR curve is ~~rising~~ straight line from the origin.
- TR starts from origin because TR becomes zero when quantity selling is zero.

ix. State the nature of AR and MR under the perfect competition market.

⇒ The nature of AR and MR under the perfect competition market are given below:

- AR and MR are equal to the price.
- AR and MR are equal and constant for all level of quantity selling.

x. Why AR and MR becomes equal to price and AR & MR curves become horizontal in case of perfect competition market?

⇒ Under perfect competition market, price is constant at all levels of output because it is determined by market forces. Total revenue changes at constant rate with the change in sales quantity. Hence, AR and MR which are derived from TR become equal to price and their curve become horizontal.

xi. If total revenue earned by a firm increases from Rs 1200 to Rs 1350 because of increase of quantity selling from 7 units to 8 units then calculate the value of marginal revenue.

⇒

$$\Delta TR = \text{Rs } 1350 - \text{Rs } 1200 = \text{Rs } 150$$

$$\Delta Q = 8 - 7 = 1 \text{ Unit}$$

$$\therefore \text{Marginal Revenue (MR)} = \frac{\Delta TR}{\Delta Q}$$

$$= \frac{150}{1}$$

$$= 150$$

- xii. Calculate value of total revenue and average revenue if per unit price of the product is Rs 85 and quantity sold is 8 units.

$$\begin{aligned}\text{Total Revenue} &= \text{Per unit Price} \times \text{Quantity Sold} \\ &= \text{Rs } 85 \times 8 \\ &= \text{Rs } 680\end{aligned}$$

$$\text{Average Revenue} = \frac{\text{Total Revenue}}{\text{Quantity Sold}}$$

$$= \frac{\text{Rs } 680}{8}$$

$$= \text{Rs } 85$$

B. Short questions: (For 5 marks)

- i. Explain the features of perfectly competitive market.
 ⇒ Perfectly competitive market is the market structure in which there are large number of buyers and sellers of homogeneous product. Some features of perfectly competitive market are explained below:

a) Large number of buyers and sellers: In a perfectly competitive market, all the firms are producing goods where there are a large number of buyers and sellers. The buyers try to obtain maximum satisfaction from the products they purchase and the sellers try to obtain maximum profit.

b) Homogeneous product: In a perfectly competitive market, all the firms are producing homogeneous product. There are a huge number of firms but the products that they produce are exactly the same.

c) Free entry and exit of the firm: In a perfect competition, every seller has the choice to enter or exit the industry. There are no barriers to their entry and exit. Hence, there are no abnormal profits and losses in the long run.

d) Perfect knowledge regarding the market: In a perfectly competitive market, buyers and sellers possess perfect knowledge about the market. Hence, no firm can charge a different price and no buyer is willing to pay a higher price for the same commodity.

e) Perfect mobility of factors of production: The factors of production are perfectly mobile in perfectly competitive market. They can easily and freely move from one firm to another. Labours are free to switch firms.

Moreover, uniformity in price and goal of profit maximization are some other features of perfectly competitive market.

Describe the various features of monopoly market.
Monopoly market is the market structure in which there is single seller of a product having no close substitutes. Some features of monopoly market are explained below:

- a) Single sellers and large number of buyers: In a monopoly market, there is only one seller of a product. There is only a single firm in a market supplying the product. All the buyers of the product have to purchase from the same firm.
- b) No close substitutes: There is no availability of close substitute of the product in a monopoly market. There is only a single firm producing a product which cannot be replaced by other products available in the market.
- c) Barriers to entry and exit of the firm: There are many barriers to entry and exit of a firm in a monopoly market. There are many legal complications that one has to go through to join the market.
- d) Price discrimination: In a monopoly market, the seller can change the price and quantity of the goods or services. Since there is only one seller, the sole decision of the price is made by the sellers. Thus, firm is the price-maker.

e) Imperfect mobility of factor of production: Factors of production cannot move from one firm to another because the same job of same nature is not available anywhere else in the market.

In addition to these, imperfect knowledge about market and goal of profit maximization are some other features of monopoly market.

Q.11. Derive the average revenue and marginal revenue curves from total revenue under perfect competition market.

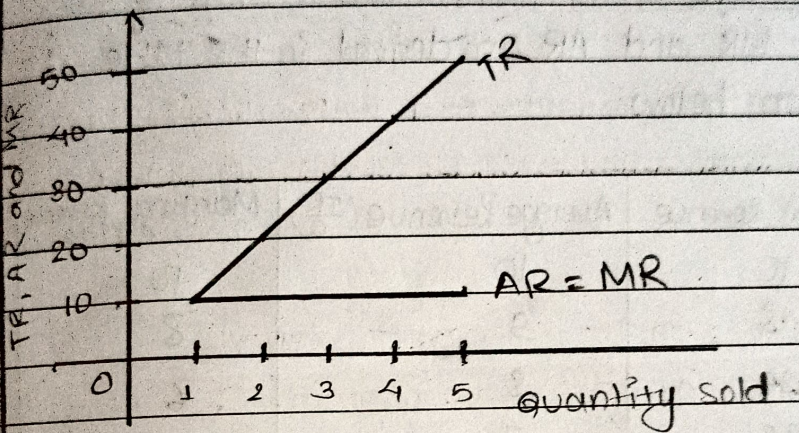
⇒

Total Revenue is the total amount of money received after selling the given quantity. TR Curve is a upward sloping straight line which increases at constant rate, in perfect competition.

Average Revenue is the revenue per unit of quantity sold. Likewise, Marginal Revenue is the change in units of quantity sold. AR and MR curves can be derived from TR curves.

Let us suppose, TR are 10, 20, 30, 40 and 50 for the 1, 2, 3, 4 and 5 units of sale, respectively. AR and MR are derived from TR in the table and diagram below;

Quantity	TR	$AR = TR/Q$	$MR = \Delta TR / \Delta Q$
1	10	10	10
2	20	10	10
3	30	10	10
4	40	10	10
5	50	10	10



Hence, in the above figure, AR and MR curves are derived from TR curve. AR and MR are equal in perfect competition.

iv. Derive the average revenue and marginal revenue curves from total revenue under monopoly market.

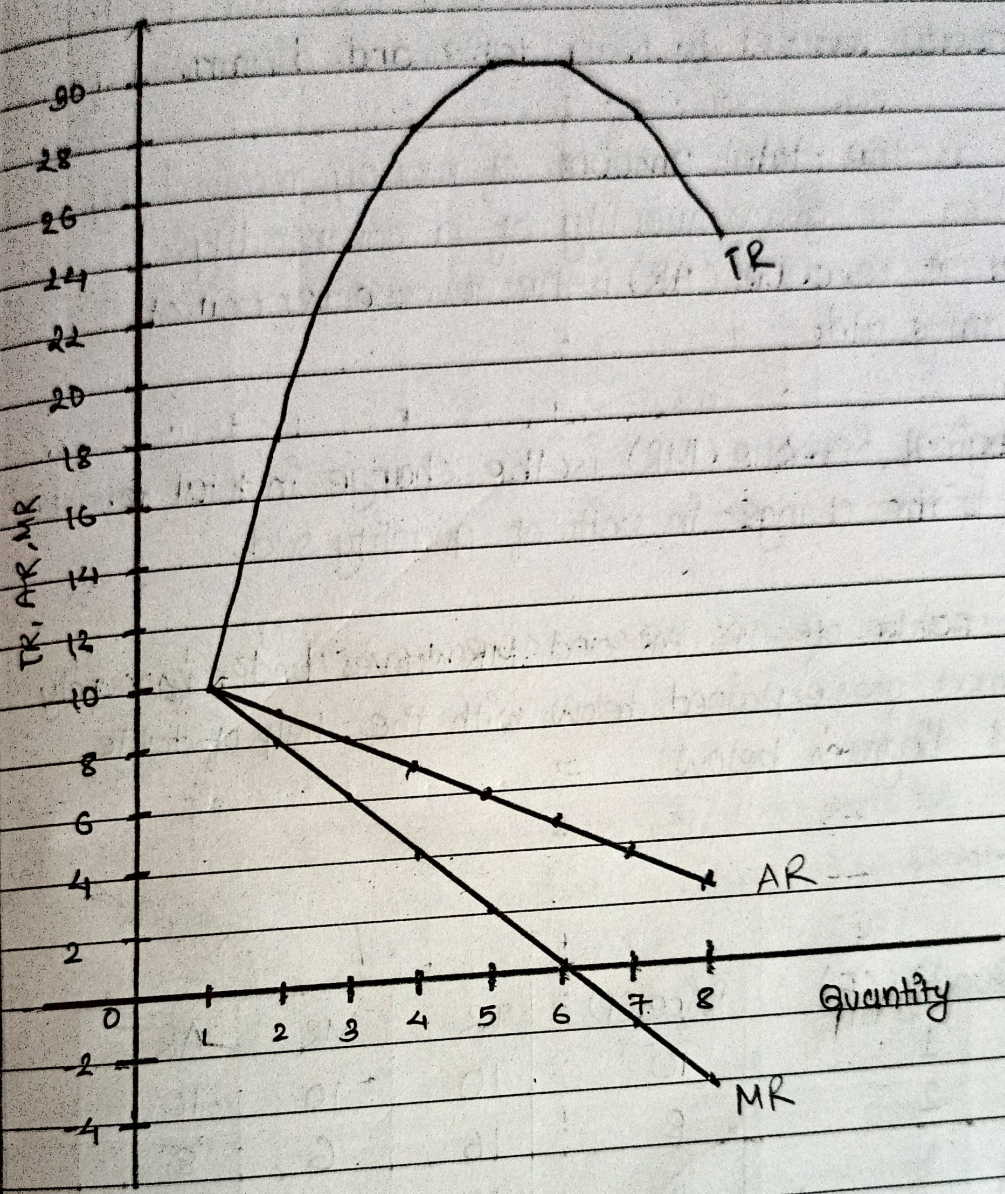
⇒ Total Revenue (TR) is the total amount of money received by selling the given quantity of a commodity. Under a monopoly market, TR increases initially, reaches its maximum and falls.

Average Revenue (AR) is the revenue per unit of quantity sold. It decreases constantly but never becomes zero or negative.

Marginal Revenue (MR) is the change in total revenue due to change in units of quantity sold. It too decreases and also becomes negative.

Both AR and MR curves can be derived from TR. Let us suppose total revenue is 10, 18, 24, 28, 30, 30, 28 and 24 for the 1, 2, 3, 4, 5, 6, 7 and 8 units of sales respectively. MR and AR are derived in the table and diagram below:

Quantity	Total Revenue	Average Revenue ($\frac{TR}{Q}$)	Marginal Revenue ($\frac{\Delta TR}{\Delta Q}$)
1	10	10	10
2	18	9	8
3	24	8	6
4	28	7	4
5	30	6	2
6	30	5	0
7	28	4	-2
8	24	3	-4



In this way, the AR curve and MR curve are derived from TR curve under monopoly market.

v. State the nature of TR, AR and MR curves under monopoly market by using table and diagram.

⇒

TR is the total amount of money received by selling the given quantity of a commodity.

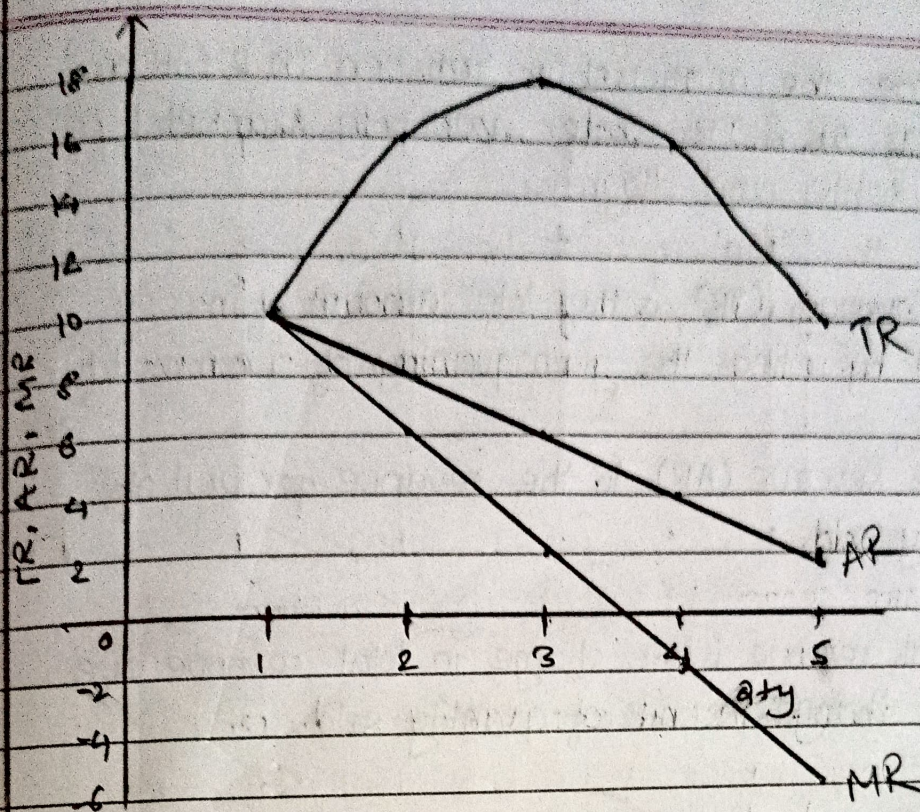
Average Revenue (AR) is the revenue per unit of quantity sold.

Marginal Revenue (MR) is the change in total revenue due to the change in unit of quantity sold.

The nature of TR, AR and MR curves under monopoly market are explained below with the help of table and diagram below:

Table

Quantity (Q)	Price (P)	TR	MR	AR
1	10	10	10	10
2	8	16	6	8
3	6	18	2	6
4	4	16	-2	4
5	2	10	-6	2



In the above diagram, quantity sold and revenue are plotted in x-axis and y-axis respectively..

TR curve is of half-oval shape. Initially, it is upward sloped, it reaches its maximum and slopes downward.

AR curve is every decreasing. It is downward sloping. It never becomes zero or negative.

MR curve is also downward sloping. However, it can be zero and negative as well.

vi. Describe the relationships between TR & MR as well as AR & TR under monopoly market by using table and diagram.

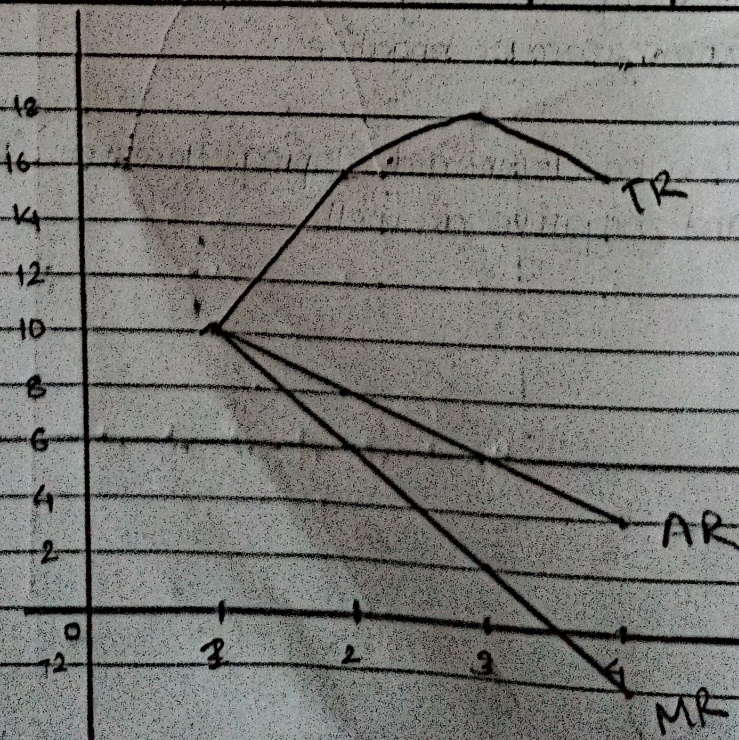
⇒ Total Revenue (TR) is the total amount of money received by selling the given quantity of a commodity.

Average Revenue (AR) is the revenue per unit of quantity sold.

Marginal revenue is the change in total revenue due to the change in units of quantity sold.

A table and diagram are made below showing the AR, MR and TR curves under monopoly market.

Quantity	Price	TR	MR	AR
1	10	10	10	10
2	8	16	6	8
3	6	18	2	6
4	4	16	-2	4



Relationship between TR and MR

- 1) When MR is positive, TR is increasing.
- 2) When MR becomes zero, TR becomes maximum.
- 3) When MR is negative, TR starts decreasing.
- 4) MR can be positive, negative or zero but TR is always positive.

Relationship between AR and MR

- 1) Both AR and MR are derived from TR.
- 2) Both are downward sloping curves.
- 3) MR can be positive, negative or zero, but AR is always positive.
- 4) ~~MR can be positive, negative or zero, but TR is always positive.~~
- 4) ~~MR decreases at faster rate than AR.~~

C. Long answer questions

1. Consider the following table:

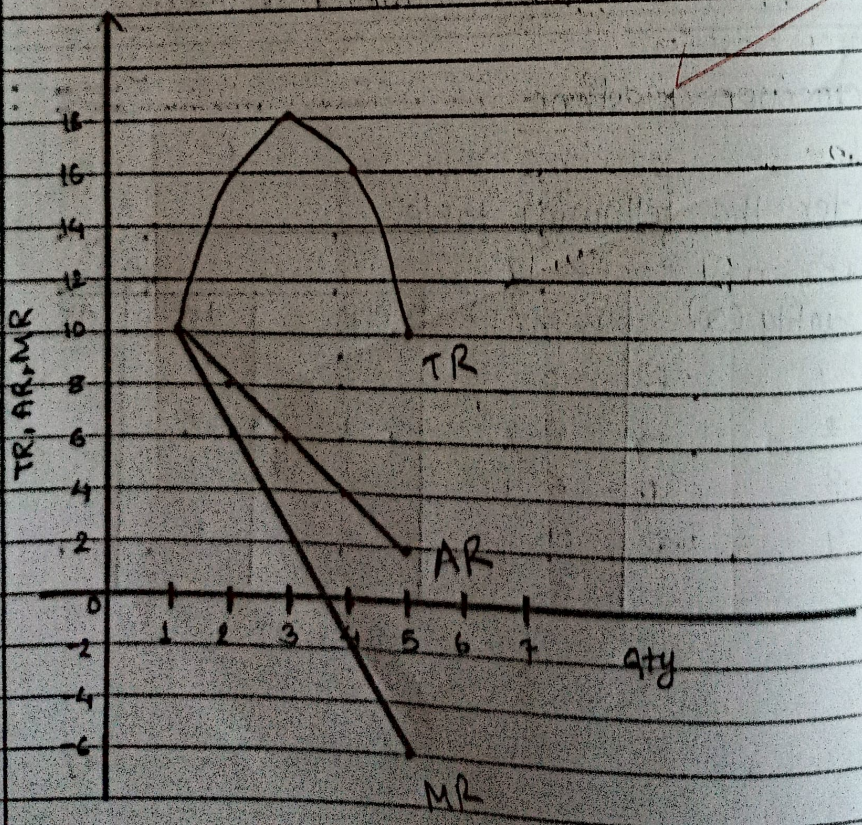
Quantity (Q)	Price (P)	TR	MR	AR
1	10			
2	8			
3	6			
4	4			
5	2			

a. Calculate the values of TR, MR, and AR.

Quantity (Q)	Price (P)	TR	MR	AR
1	10	10	10	10
2	8	16	6	8
3	6	18	2	6
4	4	16	-2	4
5	2	10	-6	2

b. What type of market is this? Give your reasons.
 ⇒ This table shows that the market is monopoly market because Average Revenue (AR) and Marginal Revenue (MR) are not equal and Total Revenue (TR) didn't increase or decrease in proportionate constant ratio.

c. Draw the TR, MR and AR curve in one diagram.



- d. Write the relationship between MR and TR, AR and MR.

Relationship between MR and TR

- 1) When MR is positive, TR increases at a decreasing rate
- 2) When MR becomes negative, TR starts to decrease.
- 3) The increasing and decreasing rate of TR is equal to MR.

Relationship between AR and MR

- 1) AR and MR have positive relationships. A decrease in MR causes to decline.
- 2) The decrease in MR is greater than the decrease in AR.
- 3) MR might be negative; however, AR always remains positive.

2. Consider the following table:

Quantity (Q)	Price (P)	TR	MR	AR
1	20			
2	20			
3	20			
4	20			
5	20			

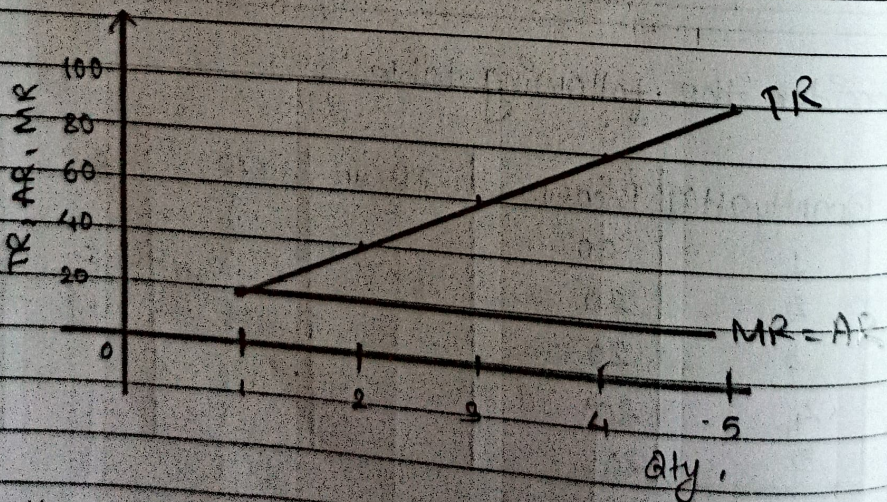
a) Calculate the values of TR, MR and AR.

Quantity sold (Q)	Price (P)	TR	MR	AR
1	20	20	20	20
2	20	40	20	20
3	20	60	20	20
4	20	80	20	20
5	20	100	20	20

b) What types of market is this? Why?

⇒ This table shows that the market is perfect competition market because Average Revenue (AR) and Marginal Revenue (MR) are equal to price and constant. Even total revenue increases in proportionate constant value.

c) Draw the TR, MR and AR curves in one diagram.



d) Mention the nature of TR, MR and AR curves.

⇒ TR curve is a sloping upward curve. MR curve and AR curve are straight lines horizontal or parallel to the x-axis.

4-3

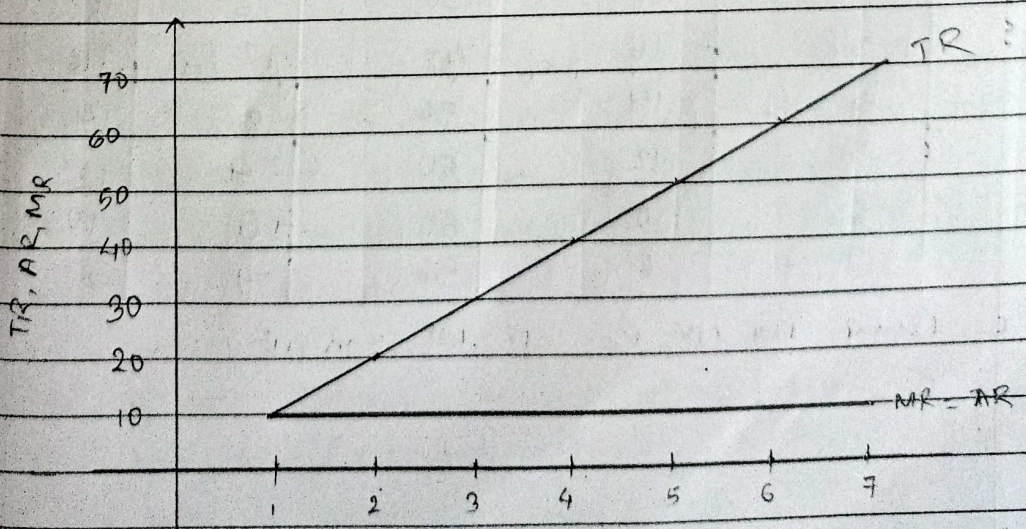
3. you are given the following table:

Quantity (Q)	Price (P)	TR	MR	AR
1	10			
2	10			
3	10			
4	10			
5	10			
6	10			
7	10			

a) Calculate the values of TR, MR and AR.

Quantity (Q)	Price (P)	TR	MR	AR
1	10	10	10	10
2	10	20	10	10
3	10	30	10	10
4	10	40	10	10
5	10	50	10	10
6	10	60	10	10
7	10	70	10	10

b) Plot the TR, MR and AR in Graph.



c) What type of market is this? Why?

⇒ This is a perfectly competitive market because price remains constant at various levels of output.

d) What is the nature of TR curve?

⇒ TR curve is a upward sloping straight line that increases at a constant rate.

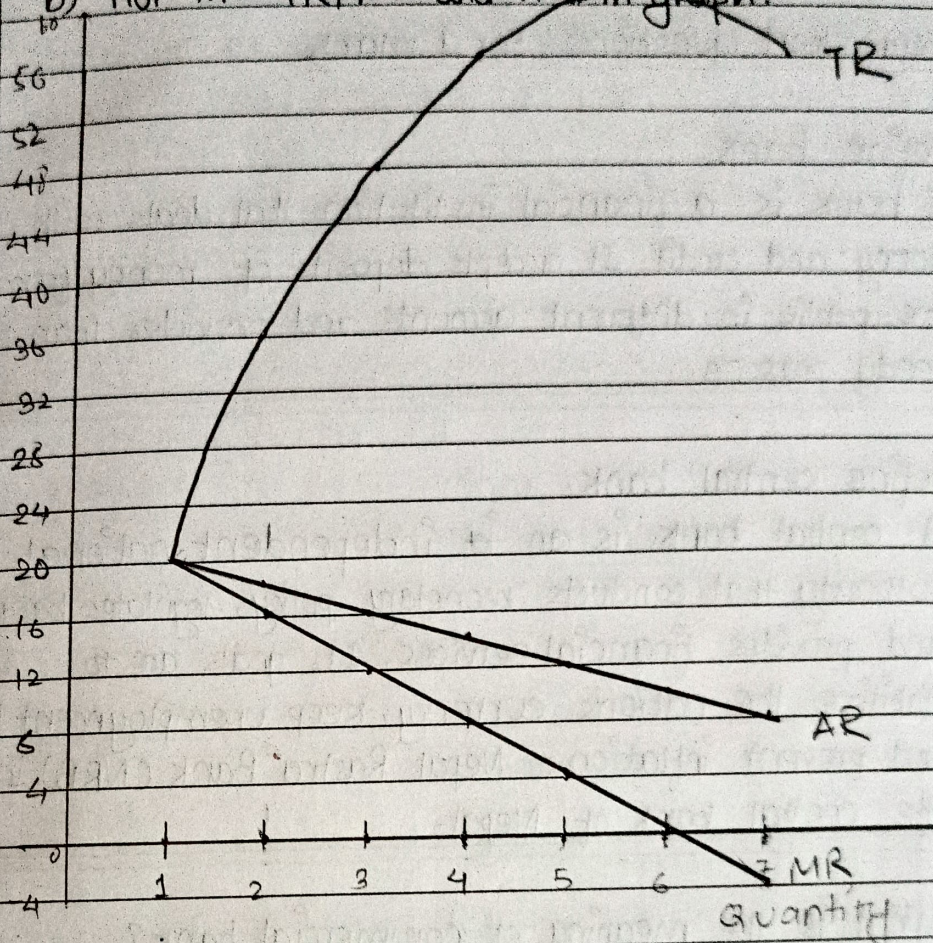
4. Consider the following table :

Quantity (Q)	Price (P)	TR	MR	AR
1	20			
2	18			
3	16			
4	14			
5	12			
6	10			
7	8			

a) Calculate the values of TR, MR and AR.

Quantity (Q)	Price (P)	TR	MR	AR
1	20	20	20	20
2	18	36	16	18
3	16	48	12	16
4	14	56	8	14
5	12	60	4	12
6	10	60	0	10
7	8	56	-4	8

b) Plot the TR, MR and AR in graph.



c) What type of market is this? Why?

⇒ This is monopoly market because price is changing at various levels of output.

d) Show the relationship between TR and MR.

- ⇒ i) When MR is positive, TR is increasing.
- ii) When MR becomes zero, TR is maximum or constant.
- iii) When MR is negative, TR is decreasing.
- iv) MR can be positive, negative or zero, but TR is always positive.

e) List the relationship between AR and MR.

- ⇒ i) Both are derived from TR.
- ii) Both are downward sloping curves.
- iii) MR decreases at faster rate than AR.