Solutions Academy

Questions for practice

1. When the price of a product falls from 10 to 5 per unit its demand rose to 150 units from 100 units Find Elasticity of demand. (-1)

2. At Rs. 100 per kg Mr X was buying 10 units of good Y but when price increased to Rs. 120 per kg his demand decreased to 8 units find elasticity of demand. (-1)

3. Price of a product increased by 10% because of which demand decreased from 50 to 40 units find price elasticity of demand. (-2)

4. With change in price by 20% the demand changed by 50% find elasticity of demand.

5. When the price increased by 20% the demand decreased to half of existing Find price elasticity of demand. 2.5.

6. When price increased by Half of existing the demand decreased by 20 units which was earlier 160 units find Ed. (-1)

7. When price got doubled of existing the demand reduced to half find the price elasticity of demand. (0.5)

8. Price of a product was 100 pre kg but when It reduced to 80 per kg the demand increased by 10% Find the price elasticity of demand.

Problems when Elasticity of demand is given in the question :

9. Price of a product is Rs 20 per kg but when it increased to Rs. 25 the demand decreased from existing 100 units if the price ed is 2 find the new quantity.

10. Price ed of a product is 1 the initial price is 10 and initial quantity is 1000 units with the change in price the new quantity is 1200 units find the new price.

11. The coefficient of Ed of a commodity is 2. consumer buys 20 units of the commodity at a price of 10 per unit How much quantity of this commodity will he buy when its price rises to Rs 12 per unit.

Income Elasticity of Demand :

Note : In case of income elasticity of demand the only change is the income in place of price now the new formula is as follows :

Income Ed :

$$\Rightarrow \quad \frac{\Delta q}{\Delta y} * \frac{y}{q}$$

Problems for practise :

12. When income of Mr.A was Rs4000 his demand was 150 units but when the income rose to Rs.5000 his demand increased to 200 units find income elasticity of demand and give nature of product whether an inferior of superior.

13. Income elasticity of demand of a product was 2 initially when the income was 10000 the demand was 1000 units but when the income rose to 12000 the demand also increased find the new demand and give the nature of product whether inferior or superior.

14. With the increase in income of consumer by Rs. 5000 which was initially 10000 the demand decreased by 20% find the income elasticity of demand.

15. When the income increased by 50 % the demand decreased by 20 % find income elasticity of demand.

16. When the demand rose by half of the existing and income also increased in the same proportion find the elasticity of demand for income. (1)

17. If income and demand of product change in the same proportion what would be coefficient of income elasticity of demand. (1)

18. If demand has got doubled because of inc.ease in income by 100 % what would be income elasticity of demand. (1)

Cross Elasticity of demand

Note : In case of cross elasticity of demand the responsiveness of demand of one product is calculated for the price of its related product therefore in the formula price for one product and quantity for another will be taken.

Cross Ed.

$$\Rightarrow \quad \frac{\Delta Q_x}{\Delta p_y} * \frac{p_y}{Q_x}$$

Problems for practise :

19. When price for coke was Rs. 10 per bottle the demand was 200 bottles but when the price for pepsi reduced from Rs. 10 to 9 the demand for coke was reduced to 100 bottles find the cross elasticity of demand.

20. With the increase in price of good X by 20 % the demand for good Y decreased by 50 % find the cross elasticity of demand and give the nature of product whether complementary or substitute.

[Solutions Academy]

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Elasticity of Demand

1 Q. Find out the elasticity of demand on the basis of the following data:

Price	Quantity
Rs.10	20 quintals.
Rs.20	15 quintals.

(¼ or 0.25)

2 Q. From the information given below, compare the elasticity of demand for demand A and commodity B.

Commodity A		Commodity B	
Price	Demand	Price	Demand
10	100	8	200
12	40	10	100

Ans:(Commodity A= 3
Commodity B= 2)

3Q. At Rs.5 per unit, consumer buys 40 units of a commodity and the price elasticity of demand is -2. How much will he buy if the price reduces to Rs.4 per unit?

(56 units)

4Q. A consumer buys 100 units of good X at Rs.5 per unit. The price elasticity of demand for the good is 2. At what price will he be willing to buy 140 units of good X?

(Rs.4 per units)

5Q. At a price of Rs.50 per unit, the quantity demand of a commodity is 1000 units . When its price falls by 10 %, its quantity demand rises to 1080 units . Calculate its price elasticity of demand. Is its demand inelastic? Give reasons for your answer.

(0.8)

6 Q. A consumer spends Rs.80 on a commodity when its price Rs. 1 per unit and spends Rs.96 when its price is Rs.2 per unit. What is the price elasticity of demand for the commodity ?

(0.4)

7Q. On the basis of the information given in the following table, compute price elasticities of demand , when:

a. The price falls from Rs.7 per kg to Rs.5 per kg.
b. The price rises from Rs.5 per kg to Rs.7 per kg.

Price (Rs. per kg)	Total expenditure (Rs.)
8	0
7	7,000
6	12,000
5	15,000
4	16,000

Ans:(a) 7 (b) (5/3 or 1.67)

8 Q. Calculate price elasticity in the following cases using total expenditure method.

(i)

price (Rs.)	Quantity Demand
8	100
10	90

(ii)

price (Rs.)	Quantity Demand
8	100
10	80

(Ans (i) price elasticity $E_d<1$
(ii) price elasticity $E_d=1$)

9 Q.

a) 80% fall in the price of a commodity leads to 100% increase in its demand. Calculate price elasticity of demand . (Ans. 1.25)

b) As the price of peanut packets increases by 5%, the number of peanut packets demand falls by 8%. What is the elasticity of demand for peanut packets? (Ans 1.6)

c) As a result of 5% fall in the price of a good its demand rises by 12%. Find out price elasticity of demand and say whether demand is elastic or inelastic and why? (Ans. E_d= 2.4; more elastic demand)

10 Q. A 5% fall in the price of X leads to 10 % rise in demand for X. A 2% rise in the price of Y leads of 6% fall in demand for Y. Calculate elasticity of demand of X and Y. (Ans. X = 2, Y = 3)

11 Q. **(a)** The price elasticity is 2. The % change in price is equal to 5. Find % change in quantity. (Ans. 10%)

(b) The price elasticity is 0.5. The % change in quantity is 4. What is the % change in price ? (Ans. 2%)

12Q. Construct a demand schedule indicating price elasticity of demand equal to unity.

13Q. The price of a commodity goes up from Rs.5 to Rs.6 as a result of which demand falls from 10 units to 8 units. Calculate price elasticity of demand . (Ans. E_d= 1)

14Q. A consumer purchased 10 units of a commodity when its price was Rs.5 per unit. He purchased 12 units of the commodity when its price fell to Rs.4 per unit. What is the price elasticity of demand for the commodity ? **(Ans.** E_d=1)

15Q. Suppose, that originally, a product was selling for Rs.10 and the quantity demanded was 1,000 units . The product price changes to Rs.14 and as a result the quantity demanded changes to 500 units. Calculate the price elasticity of demand. (Ans. 1.25)

16Q. Given the following market demand schedule of a commodity X, calculate the co-efficient of price elasticity of demand when the price increases from Rs.3 per unit to Rs.5 per unit.

Price(Rs.):	7	6	5	4	3	2	1
Quantity of X:	500	750	1,250	2,000	3,250	4,750	8,000

(Ans. E_d= 0.92)

17 Q. Calculate price elasticity by percentage method from the following data:

Price per unit (Rs.per unit)	Expenditure (Rs.)
5	500
6	450

(Ans. E_d=1.25)

18Q. A dentist was charging Rs.300 for a standard cleaning job and per month it used to generate total revenue equal to Rs. 30,000. She has since last month increased the price of dental cleaning to Rs.350. As a result, fewer customers are now coming for dental cleaning, but the total revenue is now Rs.33,250. From this, what can we conclude about the elasticity of demand for such a dental service? (Ans. E_d<1)

19Q. On the basis of information given below, compare price elasticities of goods A and B:

Commodity A		Commodity B	
Price per unit	Total expenditure	price per unit	Total expenditure
4	20	3	15
5	30	4	24

(Ans. Goods A=0.8
Goods B=0.6)

20Q. The price of commodity is Rs.15 per unit and its quantity demanded is 500 units. Its quantity demand rises by 80 units as a result of a fall in its price by 20 % . Calculate its price elasticity of demand. Is its demand inelastic? Give reason for answer.
(It is 0.8)

21Q. Given that the quantity previously demand was 100 units, decrease in quantity demanded 5 units, increase in price Rs.5 and price elasticity of demand 1.2, calculate price before change.
(Rs.120)

22Q. Calculate the original price (i.e, initial price) of a commodity when its elasticity of demand , initial quantity demanded , change in quantity demanded and fall in price are given as 2, 10 units, 5 units and Rs.10 respectively.
(Ans. Initial Price = Rs.40)

23Q. The co-efficient of price elasticity of demand of a commodity is 0.2. When its price is Rs.10 per unit, its quantity demanded is 40 units. If the price falls to Rs.5 per unit, how much will be its quantity demanded?
(Ans 44 units)