

NUMERICALS FOR PRACTICE: ELASTICITY OF DEMAND

(The answers are given in blue)

Q1) For a particulate product, price was reduced from Rs 50 per unit to Rs 48 in order to attract more customers. It was observed that demand for the product subsequently increased from 100 to 110 units. Calculate the price elasticity of demand

$$\text{ANS: } E_p = (\Delta Q / \Delta P) * P / Q$$

$$\Delta Q (\text{new-initial}) = 110 - 100 = 10 \text{ units}$$

$$\Delta P (\text{new - initial}) = 48 - 50 = \text{Rs } -2$$

$$E_p = 10 / -2 * 50 / 100 = -2.5$$

The product has a relatively elastic demand

Q2) Find the income elasticity of demand for a consumer if his income rises from Rs 100 to Rs 200 and the quantity of a good purchased by him rises from 25 units to 30 units.

$$\text{ANS: } E_y = (\Delta Q / \Delta Y) * Y / Q$$

$$\Delta Q = 30 - 25 = 5 \text{ units}$$

$$\Delta Y = 200 - 100 = \text{Rs } 100$$

$$E_y = 5 / 100 * 100 / 25 = 0.2$$

Q3) The quantity demanded of a commodity increases from 8000 units to 10,000 units due to increase in advertisement expenditure from Rs 6000 to Rs 12000. Find the promotional elasticity of demand

$$\text{ANS: } E_a = (\Delta Q / \Delta A) * A / Q$$

$$\Delta Q = 2000$$

$$\Delta A = 6000$$

$$E_a = 2000 / 6000 * 6000 / 8000$$

= 0.25. As this value is positive it is beneficial for the firm to undergo the promotional expenditure.