What is Price Elasticity of Demand?

Worksheet

PED = (% Change in Quantity Demanded) / (% Change in Price). If |PED| > 1, demand is elastic (sensitive to price). If |PED| < 1, demand is inelastic (relatively insensitive).

PED = (% Change in Quantity) / (% Change in Price)

Questions

1. A 10% price increase causes a 15% fall in quantity. What is |PED|?
A) 0.67
B) 1.5
C) 1.0
D) 0.15

2. Which good typically has the most elastic demand?
A) Electricity
B) Water
C) Luxury jewelry
D) Salt

3. A bread bakery lowers prices by 20% and sees a 5% rise in sales. Demand is
A) Elastic
B) Inelastic
C) Unit elastic
D) Perfectly inelastic

4. Inelastic demand means a price increase will
A) Decrease total revenue
B) Increase total revenue
C) Have no effect on revenue
D) Require advertising

5. A coffee shop raises prices from $3 to $3.60 (20% increase). Sales drop from 200 to 160 cups (20% decrease). Calculate PED.

6. A luxury watch increases price from $5,000 to $6,000 (20% increase). Demand falls from 50 to 20 units (60% decrease). What is PED?

7. A pharmacy raises insulin prices from $50 to $75 per vial (50% increase). Demand drops only 5% (because patients need it). Calculate PED.

8. Define: What is price elasticity of demand?

9. Define: What does |PED| > 1 mean?

10. Define: What does |PED| < 1 mean?

Answer Key

1. B) 1.5 - PED = -15% / +10% = -1.5; |PED| = 1.5 (elastic).

2. C) Luxury jewelry - Luxury goods are discretionary; consumers easily switch brands or reduce purchases with price changes.

3. B) Inelastic - |PED| = 5% / 20% = 0.25 (< 1) - inelastic. Bread is a staple; price cuts don't drive much volume.

4. B) Increase total revenue - With inelastic demand, quantity drops little, so the higher price per unit increases total revenue.

5. % Change in Q = (160 - 200) / 200 = -20% % Change in P = (3.60 - 3.00) / 3.00 = +20% PED = -20% / +20% = -1.0 (|PED| = 1.0 - unit elastic)

6. % Change in Q = (20 - 50) / 50 = -60% % Change in P = (6,000 - 5,000) / 5,000 = +20% PED = -60% / +20% = -3.0 (|PED| = 3.0 - highly elastic; luxury goods are price-sensitive)

7. % Change in Q = -5% % Change in P = (75 - 50) / 50 = +50% PED = -5% / +50% = -0.1 (|PED| = 0.1 - highly inelastic; necessities are price-insensitive)

8. A measure of how responsive quantity demanded is to price changes: (% Q) / (% P).

9. Elastic demand - consumers are price-sensitive; a 1% price rise causes > 1% drop in quantity.

10. Inelastic demand - consumers are relatively insensitive to price; a 1% price rise causes < 1% drop in quantity.