Price Elasticity of Demand

- It measures how responsive is **quantity demanded** to **price changes**.
- Formula (using % changes):

How to calculate?

If % changes are known:

$$E_D = \frac{\%\Delta Q}{\%\Delta P}$$

If only before/after prices & quantities are known:

Use **Midpoint Formula**:

$$E_D = \frac{\frac{Q_2 - Q_1}{(Q_2+Q_1)/2} \cdot 100}{\frac{P_2 - P_1}{(P_2+P_1)/2} \cdot 100} = \frac{\frac{Q_2 - Q_1}{(Q_2+Q_1)}}{\frac{P_2 - P_1}{(P_2+P_1)}}$$

Interpretation

- $|E_D| > 1 \rightarrow$ elastic (very responsive).
- $|E_D| < 1 \rightarrow$ inelastic (not very responsive).

Note: *Slope ≠ elasticity.* Along a linear demand curve:

- Slope is constant.
- Elasticity changes depending on where you are on the curve.

Different types of elasticities:

- Price elasticity of *demand*: always *negative* → we usually see the **absolute value**.
- Price elasticity of *supply*: always *positive*.
- *Cross*-price elasticity of demand:
  - Positive = **substitutes**.
  - Negative = **complements**.
- *Income* elasticity of demand
  - Positive = **normal good**.
  - Negative = **inferior good**.