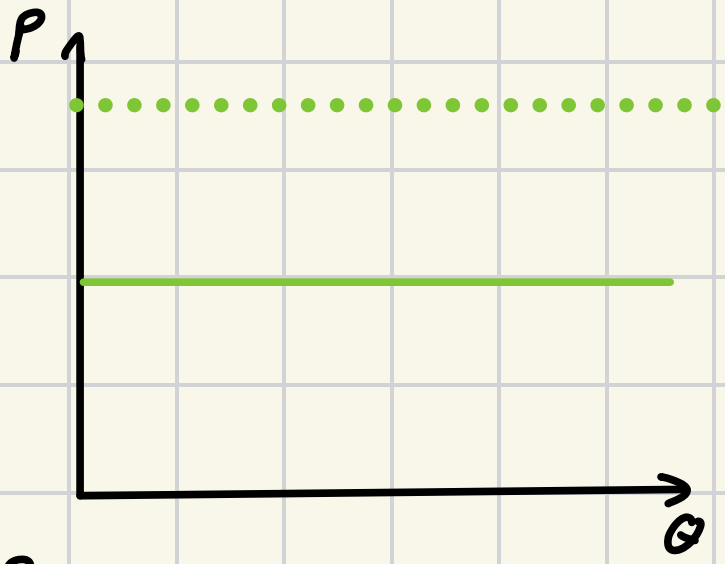
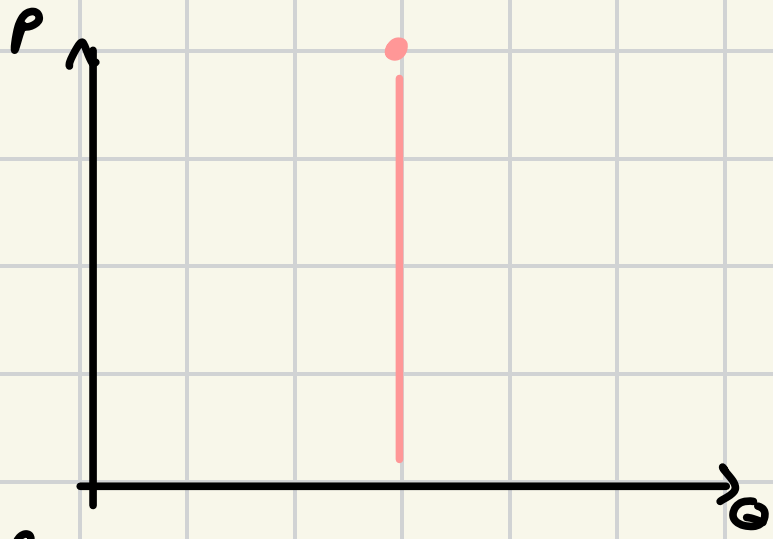
ELASTICITY

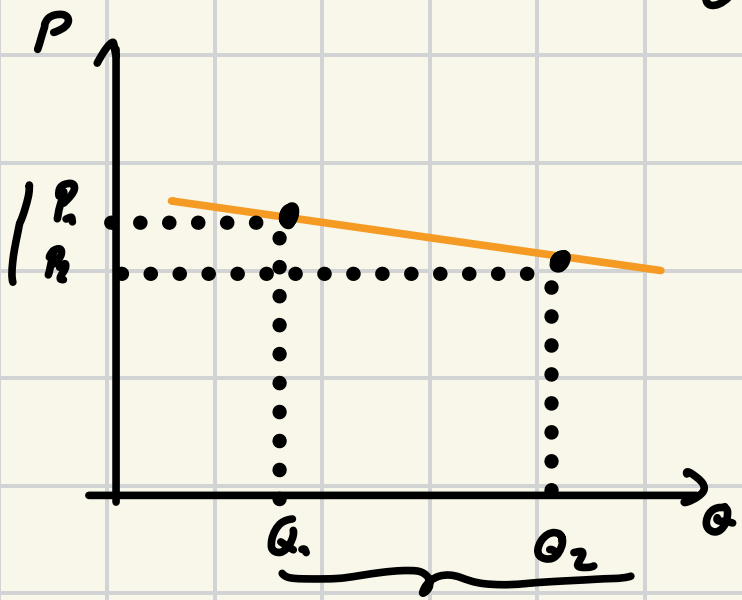
- IDEA
  - Definition: How changes in prices affect the Quantity Demanded
  - Inelastic: Medicine => We need to buy anyway so the quantity does not change with higher prices
  - Elastic: Dark chocolate => If prices for Dark chocolate increase, I can consume other types of chocolate so I am going to consume less chocolate
  - Why the name is elastic?

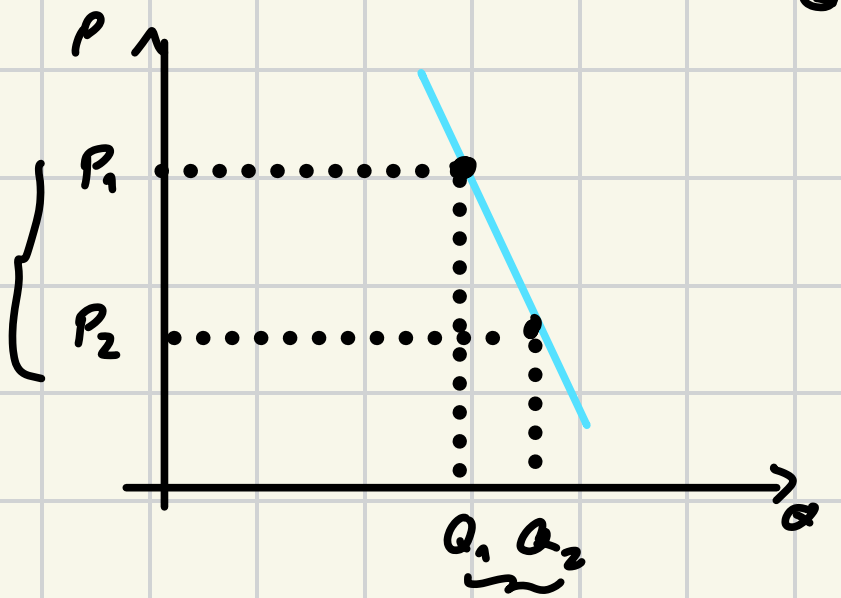
    Rubber band X Bottle

- Graphically





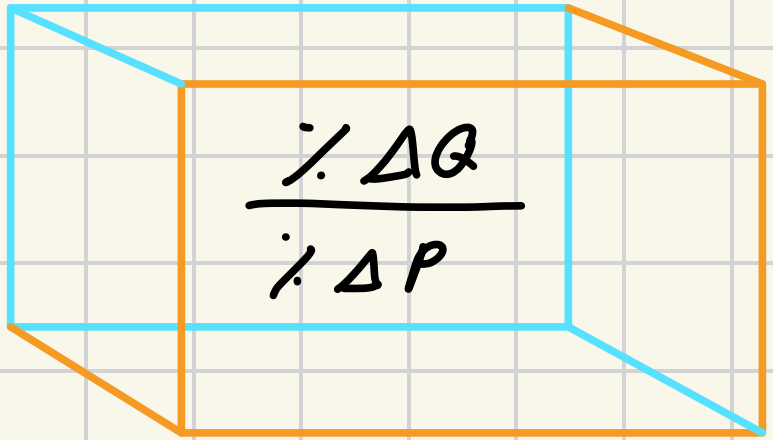




- Math

$$\%\Delta Q = \frac{Q_2 - Q_1}{Q_1} \qquad \%\Delta P = \frac{P_2 - P_1}{P_1}$$

- Price Elasticity of the Demand



$|\epsilon| > 1$ Elastic

$|\epsilon| = 1$ unitary

$|\epsilon| < 1$ Inelastic

- Elasticity ≠ Slope
- Midpoint : Q_1 for $\frac{Q_2 + Q_1}{2}$, P_1 for $\frac{P_2 + P_1}{2}$

- What Influences Elasticities
  - Substitute Goods
    - ↑ substitutes → ↑ Elastic
      - * Substitutes for Dark chocolate: Sweet chocolate, Peanut butter chocolate ...
      - * Substitutes for medicine: None
      - * Specific brands
      - * Necessities
      - * Time

Other Elasticities

- Cross-price Elasticity: $\frac{\%\Delta Q_1}{\%\Delta P_2}$

  >0 : $\uparrow P_2 \Rightarrow \uparrow Q_1 \Rightarrow$ Substitutes

  <0 : $\uparrow P_2 \Rightarrow \downarrow Q_1 \Rightarrow$ Complements

- Income Elasticity of the Demand: $\frac{\%\Delta Q}{\%\Delta I}$

  >0 : $\uparrow I \Rightarrow \uparrow Q \Rightarrow$ Normal good

  <0 : $\uparrow I \Rightarrow \downarrow Q \Rightarrow$ Inferior good

- Price Elasticity of the Supply: $\frac{\%\Delta Q^S}{\%\Delta P}$

MODULE 5 Q2

Moment 1: $Q_1 = 10$ $P_1 = 1$

Moment 2: $Q_2 = 30$ $P_2 = 2$

Midpoint: Price: $\frac{2+1}{2} = 1.5$

Quantity: $\frac{40}{2} = 20$

Price elasticity of the supply: $\frac{\frac{30-10}{20}}{\frac{1-2}{1.5}}$

$\frac{1}{-\frac{1}{1.5}} = -1.5$

Module 5 Q 3

Moment 1: $P_1 = 6$ $\quad Q_1 = 20 - 0.5 \cdot 6 = 17$

Moment 2: $P_2 = 4$ $\quad Q_2 = 20 - 0.5 \cdot 4 = 18$

Midpoint: $P: \frac{6+4}{2} = 5$ $\quad Q: \frac{17+18}{2} = \frac{35}{2}$

Elasticity: $\left(\frac{18-17}{\frac{35}{2}}\right) \setminus \left(\frac{4-6}{5}\right) = \frac{2}{35} \cdot \frac{5}{2} = \frac{1}{7}$

Practic Q3 Q5 Q19