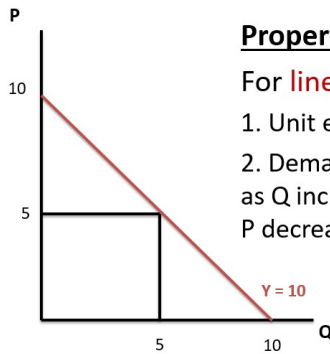
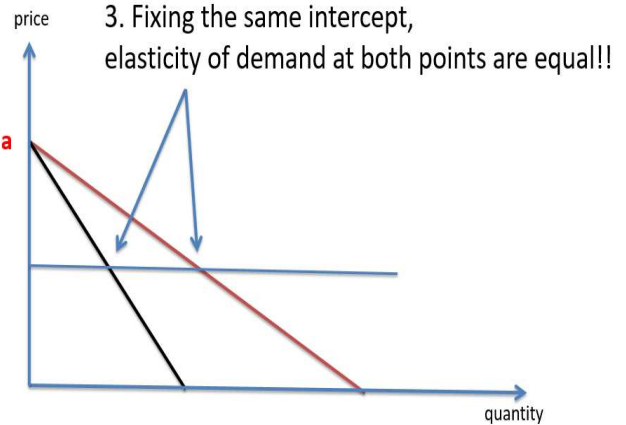


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Linear function: slope v.s. elasticity

**Property:**For **linear** demand curve:

1. Unit elasticity at the mid point.
2. Demand becomes more **inelastic** as Q increases, (correspondingly to P decreases)



3. Fixing the same intercept, elasticity of demand at both points are equal!!

Exercise 2.A:

2.A.1) Given a demand function by $p = a - bQ$, derive the formula for the elasticity of demand, and show that the third property holds

2.A.2) Given the market supply $p = c + dQ$ where $d \geq 0$, show that

- (i) elasticity of supply is always greater than 1 if $c > 0$,
- (ii) elasticity of supply is always equal to 1 if $c = 0$,
- (iii) elasticity of supply is always less to 1 if $c < 0$.

2. A.1) Elasticity of demand (Price elasticity)

$$E_d = E_{Q_d, P}$$

$$= \frac{\% \Delta Q_d}{\% \Delta P}$$

$$= \frac{\% \Delta Q_d}{\% \Delta P} \cdot \frac{P}{Q_d}$$

$$\stackrel{E_x}{=} Q_d = a - bP, \quad \frac{\Delta Q_d}{\Delta P}$$

$$= \frac{Q_d - Q_{d1}}{P_2 - P_1} = \frac{(a - bP_2) - (a - bP_1)}{P_2 - P_1}$$

$$\Delta Q_d / \Delta P = b$$