

Exam 1 – ECON 30100 – Grodeck – Spring 2026. Formulas to know

$$PV = \sum_{t=0}^n \frac{FV}{(1+i)^t}$$

$$NPV = PV \text{ of Benefits} - PV \text{ of Costs}$$

$$TR(Q) = P(Q) \cdot Q$$

$$Profit \Pi(Q) = TR(Q) - TC(Q)$$

$$MR(Q) = \frac{\Delta TR}{\Delta Q} = \frac{dTR}{dQ}$$

$$\varepsilon_X^d = \% \frac{\Delta Q_X^d}{\Delta P_X} = \frac{dQ_X^d}{dP_X} \cdot \left(\frac{P_X}{Q_X^d} \right)$$

$$\varepsilon_{X,Y}^d = \frac{\% \Delta Q_X^d}{\% \Delta P_Y} = \frac{dQ_X^d}{dP_Y} \cdot \left(\frac{P_Y}{Q_X^d} \right)$$

$$\varepsilon_{X,A}^d = \frac{\% \Delta Q_X^d}{\% \Delta A} = \frac{dQ_X^d}{dA} \cdot \left(\frac{A}{Q_X^d} \right)$$

$$\text{Producer Surplus} = (P_{eq} - P_{Qs=0}) \cdot Q \cdot 0.5$$

$$\text{Consumer Surplus} = (P_{Qd=0} - P_{eq}) \cdot Q \cdot 0.5$$