ECON 219: Problem Set #4

Due on Jun 12, 2025

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Problem 1

Consider a monopolistic firm operating in three differenc markets. Its revenue and cost function:

$$R = R_1(Q_1) + R_2(Q_2) + R_3(Q_3)$$
$$C = C(Q) \text{ Where } Q = Q_1 + Q_2 + Q_3.$$

1. Define the profit maximization problem of the firm.
2. Present the first-order condition (set of equations).
3. Provide an economic interpretation to the firs order condition. Specifically, connect marginal revenues and demand elasticities to explain under what condition the frim will change a higher price.
4. Present the Hessian of the firm's objective function.
5. Assume each of the revenue function is concave and convex cost. Would this structure secure the second- order condition? Explain.