

Microeconomic Theory II
Midterm Exam

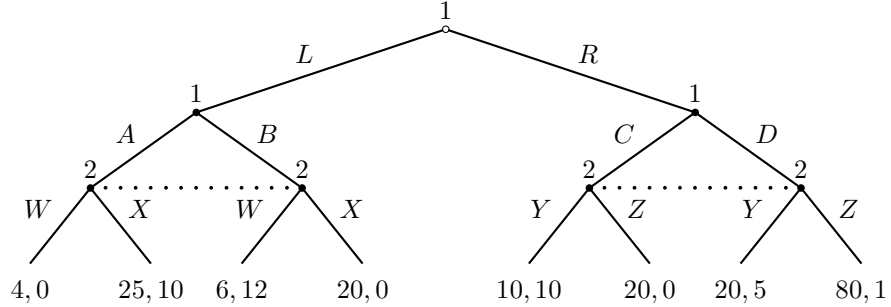
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Question 1. Consider the normal form game below.

		Player 2			
		<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
Player 1	<i>M</i>	10, 1	10, 0	10, 0	80, 0
	<i>N</i>	100, 1	20, 6	10, 18	40, 0
	<i>O</i>	60, 1	10, 24	30, 0	20, 0
	<i>P</i>	88, 4	16, 500	14, 500	18, 500

- What strategies survive the iterated deletion of strictly dominated strategies? Be sure to demonstrate why a strategy is dominated.
- Find all Nash equilibria.
- Imagine that this game is repeated twice. Is there a subgame-perfect equilibrium in which Player 2 earns 500 in the first period? Carefully explain why or why not.
- Imagine that this game is repeated an infinite number of times. Is there a subgame-perfect equilibrium in which Player 2 earns an average payoff of 500? Carefully explain why or why not.

Question 2. Consider the extensive form game below. The dotted lines represent information sets.



- Write down or describe the set of all *pure* strategies for each player.
- Find all pure-strategy subgame-perfect Nash equilibria.

Question 3. Consider a market consisting of a single manufacturer and two retailers. First, the manufacturer sets a wholesale price, w . Second, the two retailers observe w and simultaneously decide on production quantities, q_1 and q_2 , which they must purchase from the manufacturer. That is, the two retailers are Cournot competitors with marginal cost w .

The market price is given by $p(q_1, q_2) = 1 - q_1 - q_2$. A retailer's profit is given by $(p - w)q_i, i \in \{1, 2\}$, and the manufacturer's profit is given by $(q_1 + q_2)w$. Each firm is profit maximizing.

- Find the subgame-perfect Nash equilibrium.