

Whitman College
 Econ 328
 Exam 2
 October 21, 2010

Write all answers in your blue book. Show **all of your work**, including all of the calculations. The exam ends at 10:55.

1. For parts (a)-(f), consider Game 1 below.

		Game 1		
		Player 2		
		A	W	Z
Player 1	X	1, 7	1, 5	3, 4
	Y	2, 3	0, 4	0, 6

- (a) (5pts) Which, if any, strategies are dominated? For each dominated strategy, specify a strategy that dominates it.
- (b) (5pts) What are the rationalizable strategy profiles for this game?
- (c) (5pts) Find all of the Nash equilibria in that exist in pure strategies for this game.
- (d) (15pts) Find the Nash equilibrium in mixed strategies for this game, if such an equilibrium exists.
- (e) (10pts) Draw the best response graph for this game. Follow the convention of putting Player 1's choice of p on the horizontal axis, and Player 2's choice of q on the vertical axis. On your graph, clearly indicate each player's best response. Indicate each of the Nash equilibria on your graph.
- (f) (5pts) What are the payoffs in each of the Nash equilibria? What can you say about the Pareto efficiency of the Nash equilibria?

2. (10 pts) True or false? All games have at least one Nash equilibrium. Explain your reasoning.

3. For parts (a)-(c) below, consider a one-shot situation in which the two firms in an industry simultaneously choose their output, letting market demand determine the one price at which their identical products sell. Suppose they can sell fractions of a unit. Market demand is given by $P = 100 - 2Q_T$, where Q_T is the sum of Firm 1 and Firm 2's output. Firm 1 has a constant marginal cost of 12 and no fixed costs. Firm 2 has a constant marginal cost of 20 and no fixed costs.

(a) (25pts) Find the Nash equilibrium for this Cournot duopoly game.

(b) (10pts) What is each firm's profit in the Cournot Nash equilibrium?

(c) (10pts) Suppose Firm 1 has the option of buying a license that would give it the right to monopolize this market. What is the most Firm 1 would be willing to pay for the license preventing Firm 2 from producing? Explain your work.