Economics 4113, Spring 2009. Instructor: David Rahman, University of Minnesota.

Homework 3—Due March 12, 2009

1. Find all pure- and mixed-strategy Nash equilibria of the following games.

(a)

	L	R
U	$-1,-1$	$-1,0$
D	$0,-1$	$0,0$

(b)

	L	R
U	$-1,-1$	$3,0$
D	$4,2$	$0,-1$

2. Consider the following game.

	L	M	R
U	$4,3$	$5,1$	$6,2$
C	$2,1$	$8,4$	$3,6$
D	$3,0$	$9,6$	$2,8$

   (a) Find all pure-strategy Nash equilibria.

   (b) Are there any mixed-strategy Nash equilibria?

3. Consider the following three-person game, where player 1 picks a row, player 2 picks a column, and player 3 picks a matrix.

	L	R
U	2, 2, 3	0, 0, 8
D	0, 0, 0	2, 2, 0

A

	L	R
U	2, 2, 2	0, 0, 0
D	0, 0, 0	2, 2, 2

B

	L	R
U	2, 2, 0	0, 0, 0
D	0, 0, 8	2, 2, 3

C

   (a) Find all pure-strategy Nash equilibria.

   (b) Are there any mixed-strategy Nash equilibria?

4. Find all Nash equilibria of the following three-person game.

	L	R
U	0, 1, 3	0, 0, 0
D	1, 1, 1	1, 0, 0

A

	L	R
U	2, 2, 2	0, 0, 0
D	2, 2, 0	2, 2, 2

B

	L	R
U	0, 1, 0	0, 0, 0
D	1, 1, 0	1, 0, 3

C

5. Find all Nash equilibria of the game "Rock-Scissors-Paper."