Game Theory Day 8
Homework
Please complete on a separate piece of paper.

1. Find the N.E. of the following games:

P 1 \ P 2	L	M1	M2
U	1, 0	4, 2	2, 4
D	4, 2	1, 4	2, 0

P 1 \ P 2	L	M1	M2
U	1, 1	4, 5	2, 4
M	4, 2	1, 2	2, 0
D	5, 4	5, 5	2, 3

P 1 \ P 2	L	C	R
U	6, 3	5, 1	0, 2
M	0, 1	4, 6	6, 0
D	2, 1	3, 5	2, 8

P 1 \ P 2	L	C	R
U	5, 6	3, 7	0, 4
M1	8, 3	3, 1	5, 2
M2	7, 5	4, 4	5, 6
D	3, 5	7, 5	3, 3

2. Consider the spider game discussed in class.
   a. Consider the case where x = 0. What does this mean anecdotally to the problem? Is there a Nash Equilibrium? Why or why not?
   b. Now suppose that the payoff to winning the web I higher than 10. Clearly explain how the payoff to (F, F) might change as well. What difference, if any, would that make to the analysis?
   c. Argue that both spiders conceding can never be a Nash equilibrium of this game. For what payoffs would this be the socially desirable outcome?
   d. Anecdotally, consider why a spider would concede to another? Why would a spider choose to fight?

Spider 1 \ Spider 2	Concede	Fight
Concede	5, 5	0, 10
Fight	10, 0	x, x

   e. Let x = -2. Let x be the probability that spider 2 will concede and (1-x) she will fight. Calculate algebraically the probability to continue looking at Nash Equilibrium (like we did in class on day 7). Are these the same for spider 1?
   f. Use the probabilities to calculate the payoff for spider 1.