Experimental Economics I: Behavioral Game Theory Homework (18S)

For BGT3

1. Find all Nash equilibria in O'Neill (1987)'s Joker Game:

	A	2	3	J
A	-5, 5	5, -5	5, -5	-5, 5
2	5, -5	-5, 5	5, -5	-5, 5
3	5, -5	5, -5	-5, 5	-5, 5
J	-5, 5	-5, 5	-5, 5	5, -5

2. Find all Nash equilibria in Ochs (1995b)'s three matching pennies games:

	H	T
H	**1**, 0	0, 1
T	0, 1	1, 0

	H	T
H	**9**, 0	0, 1
T	0, 1	1, 0

	H	T
H	**4**, 0	0, 1
T	0, 1	1, 0

3. Consider Rapoport and Almadoss (2000)'s Patent Race Games:
   Two firms each have endowment e and decide how much to invest. Each firm can invest either 0 (not invest at all), 1, 2, ..., or e (invest everything). The firm who invest more than the other firm wins the patent and earns r. If they tie, nobody wins.
   a. Draw the payoff matrix of this game.
   b. Find all Nash equilibria in this game with $e = 5$, $r = 20$.
   c. Find all Nash equilibria in this game with $e = 5$, $r = 8$.

4. Find all Nash equilibria in Collins and Sherstyuk (2000)'s 3-firm Hotelling Game:
   Three ice cream stands simultaneously choose a location between 0 and 100, a beach line in which consumers are uniformly located. Consumer on the beach are lazy and will only go to the closest firm to get ice cream. Firm profits increase proportional to their sales.