EVOLUTION AND THE THEORY OF GAMES (Spring 2009)
EXERCISES 5 - 10

5. Show that in a zero-sum game every Nash equilibrium is a minimax solution.

6. Suppose that (x^*, y^*) is a Nash equilirium. Show that $k_x(x, y^*) = k_x(x^*, y^*)$ for every pure strategy x in the support of x^*.

7. Consider each of the following games with payoff matrices

(3,2)	(2,1)
(0,3)	(4,4)

and

(3,8)	(4,4)
(2,0)	(0,6)

respectively, and use the Swastika method to find all Nash equilibria.

9. Consider the "noisy duel" and the "silent duel" of exercise 4 with $N = 2$, and calculate all Nash equilibria.

10. Suppose that $x_0 \in \mathbb{X}$ is a *strictly* dominated pure strategy. Show that if $(x^*, y^*) \in \mathbb{X} \times \mathbb{Y}$ is a Nash equilibrium, then x_0 cannot be in the support of x^*. Use the following payoff matrix

(3,2)	(3,0)	(2,2)
(1,0)	(3,3)	(0,3)
(0,2)	(0,0)	(3,2)

to show that this does not generally hold if x_0 is merely dominated rather than *strictly* dominated.