Problem Set 4

Problem 1.
Show that the Nash bargaining solution satisfies the IUU property.

Problem 2.
Find the ESS in the game below (Hawk-Dove with different payoffs, notice that Hawk-Hawk gives negative payoffs to both players).

	Dove	Hawk
Dove	½ , ½	0, 1
Hawk	1, 0	- ¼ , - ¼

Problem 3. Consider the following coalitional game:
$N = \{1, 2, 3, 4\}$; $v(S) = 1$ if S contains either $\{2, 3, 4\}$ or $\{1, i\}$, and $v(S) = 0$ otherwise.
In other words, it's like a simple majority game, where player 1's vote counts as 2 votes.

a) Show that the core of this game is empty.
b) Find the Shapley value of this game.

Problem 4.
Find the Egalitarian, Utilitarian, Kalai-Smorodinsky, and Nash solution to the following bargaining problem: (U: $\{u_2 \leq 12 - 4u_1$ and $u_2 \leq 6 - u_1\}$, $u^* = 0$), as represented on the graph below.