

Homework 9

Question 1:

Find the value of the following zero-sum game. Find some optimal strategies for each of the players.

	II			
I				
	8	3	4	1
	4	7	1	6
	0	3	8	5

Question 2: the fish-selling game once more. A seller sells fish. The fish is fresh with a probability of $2/3$. Whether a given piece of fish is fresh is known to the seller, but the customer knows only the probability. The customer asks, "is this fish fresh?", and the seller answers, yes or no. The customer then buys the fish, or leaves the store, without buying it. The payoff to the seller is 6 for selling the fish, and 6 for being truthful. The payoff to the customer is 3 for buying fresh fish, -1 for leaving if the fish is fresh, 0 for leaving if the fish is old, and -8 for buying an old fish.

Question 3: the welfare game. John has no job and might try to get one. Or, he may prefer to take it easy. The government would like to aid John for seeking work, and but if he stays idle. Denoting by T , trying to find work, and by NT , not doing so, and by A , aiding John, and by NA , not doing so, the payoff for each of the parties is given by:

	J	T	NT
G			
A	(3,2)	(-1,3)	
NA	(-1,1)	(0,0)	

Find the Nash equilibria.

Question 4: Show that, in a symmetric game, with $A = B^T$, there is a symmetric Nash equilibrium. One approach is to use the set $\tilde{K} = \{(x, x) : x \in \Gamma_m\}$ in place of K in the proof of Nash's theorem.