Micro 2 -Problem Set 7

Question 1:

Consider an arbitrary exchange economy (according to the model that we showed in class).

show that an equilibrium allocation must be in the set of allocations on the contract curve that are better for both agents than the initial endowment.

Question 2:

Consider an arbitrary exchange economy (according to the model that we showed in class).

show that if the initial endowment is the point 0_1 on the Edgeworth box, then every pair of prices consist an equilibrium and that the equilibrium allocation is 0_1.

Question 3

Consider the following exchange economy $U^1(x_1, y_1) = x_1^a \cdot y_1$ and $U^2(x_2, y_2) = x_2^b \cdot y_2$ where $\omega_1^X = 20$ and $\omega_1^Y = 20$ and $\omega_2^X = 20$ and $\omega_2^Y = 20$.

(a) find the equilibrium prices and the equilibrium allocation as a function of the parameters a and b.

(b) how the consumption of X and Y of each agent changes with respect to the agents' initial endowment as a function of the relationship between a and b.

(c) provide an economic explanation for your result.

Question 4

Consider the following exchange economy $U^1(x_1, y_1) = x_1 \cdot y_1$ and $U^2(x_2, y_2) = x_2 \cdot y_2$ (note that both agents have the same utility function) where $\omega_1^X = 15$ and $\omega_1^Y = 15$ and $\omega_2^X = 15$ and $\omega_2^Y = 15$.

(a) assume that there is a social planner whose welfare can be represented as follow

$$W((x_1, y_1), (x_2, y_2)) = U_1(x_1, y_1) \cdot U_2(x_2, y_2)$$

find the allocation that maximizes the social planner's welfare (hint: present x_2 as a function of x_1 and y_2 as a function of y_1 input them in the social welfare and then compare the vector of the welfare derivatives to the vector zero and use the symmetry of the first order conditions to derive your result).

(b) find the equilibrium allocation in the economy.

(c) how the equilibrium allocation corresponds with the optimal allocation of the social planner? provide an explanation for your result.