Homework 11

No submission

1. Let $\mathcal{E} = ((X_i, \succsim_i)_{i=1}^I, (Y_j)_{j=1}^J, (\omega_i, \theta_i)_{i=1}^I)$ be a private ownership economy with L commodities, where for each i, $\succsim_i$ is assumed to be complete and transitive.

(1) Write down the definition of Pareto efficiency for $\mathcal{E}$.

(2) Write down the definition of Walrasian equilibrium of $\mathcal{E}$.

Now consider a pure exchange economy $\mathcal{E}' = ((\succsim_i)_{i=1}^I, (\omega_i)_{i=1}^I)$ as we defined in the class, where $X_i = \mathbb{R}_+^L$ for all $i = 1, \dots, I$. An allocation $x = (x_i)_{i=1}^I \in (\mathbb{R}_+^L)^I$ in $\mathcal{E}'$ is feasible if $\sum_{i=1}^I x_i \leq \bar{\omega}$.

(3) Write down the definition of Pareto efficiency for $\mathcal{E}'$ (without reference to production plans).

(4) Write down the definition of Walrasian equilibrium of $\mathcal{E}'$.

(5) Write down the statement of the First Fundamental Theorem of Welfare Economics for $\mathcal{E}'$ (do not forget to include the assumption for the theorem to hold).

(6) Write down the proof of the First Fundamental Theorem of Welfare Economics for $\mathcal{E}'$.

(Try to solve without referring to the slides or textbook.)