Problem Set 7
Solve before the classes March 26–28.

Exercise 1
Consider a private ownership economy (\(\{(X_i, \succeq_i)\}_{i=1}^I, \{Y_j\}_{j=1}^J, \{(\omega_i, \theta_{i1}, \ldots, \theta_{iJ})\}_{i=1}^I\)). Given an allocation \((x, y)\) we naturally let \(z_i = x_i - \omega_i\) denote consumer \(i\)’s net trade.

a) Explain that \(z_i\) denotes the goods bundle acquired from the market by consumer \(i\) in order to move from the initial endowment \(\omega_i\) to the consumption \(x_i\).

b) Explain that \(y_j\) is the goods bundle that firm \(j\) delivers to the market.

c) Explain that the allocation \((x, y)\) is feasible if and only if the market clears: together, the consumers take home precisely the amount delivered to the market by the firms.

Exercise 2
Consider figure 16.C.1 of the book. Carefully explain that \(x^*\) and \(p\) illustrate a price equilibrium with transfers (as claimed).

Exercise 3
Chapter 16 gives three definitions of equilibrium: Walras equilibrium, price equilibrium with transfers, and price quasi-equilibrium with transfers.

a) Consider a private ownership economy. Show that any Walras equilibrium is also a price equilibrium with transfers. Argue from an Edgeworth box example that the converse is false.

b) Consider an economy specified by \(\{(X_i, \succeq_i)\}_{i=1}^I, \{Y_j\}_{j=1}^J, \bar{\omega}\). Show that any price equilibrium with transfers is also a price quasi-equilibrium with transfers.

c) Assume that all consumers have locally non-satiated preferences. Show that \(w_i = p \cdot x^*_i\) holds in any price quasi-equilibrium with transfers.


Exercise 4