Practice Questions for Prelim #1

1. (Outside) Money Taxation

- 1 commodity, \( l = 1 \), chocolate measured in ounces (oz.)
- 2 individuals, \( h = 1, 2 \)
- taxes \( \tau = (\tau_1, \tau_2) \) measured in dollars ($)
- consumption \( x = (x_1, x_2) \) measured in ounces
- endowments \( \omega = (\omega_1, \omega_2) = (100, 25) \) measured in ounces
- \( x_h = \omega_h - P^m \tau_h \)

a. What are the units in which \( P^m \) is measured?

((b) - (e)): In what follows, when is \( \tau \) balanced or not, and when is \( \tau \) bonafide or not? Solve for \( P^m \), the set of equilibrium \( P^m \).

b. \( \tau = (5, -5) \)
c. \( \tau = (1, -7) \)
d. \( \tau = (1, -1) \)
e. \( \tau = (-1, -1) \)

f. In (b) - (e), in which cases are there multiple equilibria? What are the lessons from this for macroeconomics?

2. Outside Money: 2 Currency Taxation

Same set-up as in (1.), but now 2 currencies: euro (€) and pound sterling (£). In each of the following solve for the exchange rate \( e \). Give the units of \( e \).

a. \( \tau^€ = (-1, -1), \tau^£ = (1, 1) \)
b. \( \tau^€ = (1, -1), \tau^£ = (-5, 5) \)
c. \( \tau^€ = (2, 1), \tau^£ = (1, -5) \)
3. Inside Money: Money Market

\[ l = 1, \quad t = 1, 2, \quad h = 1, 2 \]

\[ u_h(x^1_h, x^2_h) = \log x^1_h + \log x^2_h \]

\[ \omega_1 = (\omega^1_1, \omega^2_1) = (2, 8) \]

\[ \omega_2 = (\omega^1_2, \omega^2_2) = (8, 2) \]

a. What is the equilibrium allocation \( x = ((x^1_1, x^2_1), (x^1_2, x^2_2)) \) when the money market is closed?

b. What is the Pareto optimal allocation \( x \)? Hint: you need not calculate, but you can do this for confirmation.

c. Show that the allocation \( x \) in part b is also the competitive equilibrium allocation when the money market is open. Hint: You might use the relationship between the money market equilibrium and the futures market equilibrium.