Exercises #8

Instructions

Exercises #8 are due on Wednesday, March 30th.

Exercises may be presented for credit as a hard copy at the end of the class meeting on the due date, or may be submitted electronically on Blackboard by the following Monday. If submitted on Blackboard, exercises should be attached as a Portable Document Format (`*.pdf`) file. It is possible to convert handwritten work to `*.pdf` using scanner or a camera-equipped device with Microsoft Office Lens (Android, iOS, or Windows), Google Drive (Android), or Apple Notes (iOS).

Exercises are "collaborative and open book" assignments. You are encouraged to make use of help from your peers, textbook, notes, and me, but you must submit your own answers. There is no penalty for incorrect answers; the expectation is simply for you to progress as far as you can on each question. Complete answers with explanations will be provided in recitation.

Questions

8. Consider a 2 good, 2 consumer economy. Consumer A has preferences represented by $u_A(x) = 4x_1 + 3x_2$. Consumer B has prefernces represented by $u_B(x) = 3\ln(x_1) + 4\ln(x_2)$. Suppose consumer A's endowment is $\omega_A = (12, 9)$ while consumer B's endowment is $\omega_B = (8, 11)$. What is the competitive equilibrium of this economy?

9. Consider a 2 good, 2 consumer economy. Consumer A has preferences represented by $u_A(x) = \min\{4x_1 + 3x_2, 3x_1 + 4x_2\}$. Consumer B has prefernces represented by $u_B(x) = 3x_1 + 4\ln(x_2)$. Suppose consumer A's endowment is $\omega_A = (12, 9)$ while consumer B's endowment is $\omega_B = (8, 11)$. What is the competitive equilibrium of this economy?

11. Consider a 2 good, 2 consumer economy. Consumer A has preferences represented by $u_A(x) = \alpha x_1 + x_2$. Consumer B has prefernces represented by $u_B(x) = \beta \ln(x_1) + \ln(x_2)$.

    (a) Suppose consumer A's endowment is $\omega_A = (10, 10)$ while consumer B's endowment is $\omega_B = (10, 10)$. What is the competitive equilibrium of this economy?

    (b) Suppose $\alpha = 2$, $\beta = 1$, and fix the size of the economy at 20 units of each good as above. As you have seen above, there are two kids of equilibria, interior and boundary. For which endowments will one obtain interior equilibria, and for which ones boundary equilibria?