

Additional questions for chapter 7

1. Suppose preferences are represented by the Cobb-Douglas utility function, $u(x_1, x_2) = Ax_1^a x_2^{1-a}$, $0 < a < 1$ & $A > 0$. Assuming an interior solution, solve for the Marshallian demand functions.
2. Consider the utility function $z = \ln(Ax_1^a x_2^{1-a})$, solve for the Marshallian demand functions.
3. Consider, the CES utility function $u(x_1, x_2) = (x_1^p + x_2^p)^{1/p}$
 - a. Set up the maximization problem (hint: $y - p_1x_1 - p_2x_2 \geq 0$)
 - b. Use the Lagrangian to derive the Marshallian demand functions
 - c. Use the Marshallian demand function to find the indirect utility function.
 - d. Verify that Roy's identity applies
 - e. Set up the expenditure minimization problem
 - f. Use the Lagrangian to find the Hicksian demands
 - g. Show the relation between the indirect utility functions and expenditure functions
 - h. Show the duality between the Marshallian and Hicksian Demand functions.