

HW 7

- 1) Consider trade between two consumers (1 and 2) and two goods, X and Y. Suppose the total quantities of each good are 100 units. Each consumer has Cobb-Douglas preferences given by:

$$U(X,Y) = XY$$

What is the shape of the contract curve, i.e. derive the equation? How does the contract curve change if consumer one has the utility function

$$U(X,Y) = X^2Y$$

while the other consumer's preferences are as before? Again, derive the equation for the contract curve.

- 2) Consider a society consisting of just a farmer and a tailor. The farmer has 10 units of food but no clothing. The tailor has 20 units of clothing but no food. Suppose each has the utility function $U = F * C$. The price of clothing is always \$1. If the price of food is \$3, does a competitive equilibrium exist? If not, what will happen to the price of food?
- 3) Suppose a society's PPF for food (F) and clothing (C) can be written as $25 = F^2 + C^2$. If all consumers have the same endowment and the same utility function $U_i = F_i * C_i$, what is the efficient product mix of food and clothing?