

GENERAL EQUILIBRIUM – ROBINSON CRUSOE'S ECONOMY

Problem #3

Find the ratio of (competitive) equilibrium prices for goods x and y that provide for efficiency of consumption and production, when the production possibilities frontier is: $x^2 + 4y^2 = 200$ and the utility function is: $U = (xy)^{0.5}$. Determine the produced (consumed) amount of goods x and y in this case.

Problem #4

Robinson Crusoe decided that he will spend exactly 8 hours per day searching for food. He can spend this time looking for coconuts or fishing. He is able to catch 1 fish or find 2 coconuts in 1 hour.

- a) Find the formula for Robinson's production possibilities frontier.
- b) Robinson's utility function is $U(F,C) = FC$, where F is his daily consumption of fish and C – of coconuts. How many fish will Robinson catch and how many coconuts will he find?
- c) One day a native inhabitant of another island arrived on Robinson's island. On this other island catching a fish takes 1 hour and finding a coconut – 2 hours. The visitor offered trade at an exchange rate that operates on his island, however Robinson will have to give him 1 fish as a fee for bringing him back to his island. Will Robinson profit from this trade? If yes, will he be buying fish and selling coconuts or *vice versa*?
- d) A few days later a native inhabitant of a different island arrived. On his island catching a fish takes 4 hours and finding a coconut – 1 hour. He offered Robinson trade at an exchange rate that operates on his (*i.e.* the native's) island but demanded 2 fish from Robinson for bringing him back to his island. If Robinson decides to trade with this island, in production of what will he specialize?
- e) How will Robinson's consumption possibilities change in both cases? Which situation will be more profitable for him? (Do not forget about the transportation fee!)