Algorithmic Game Theory
Winter Term 2020/21
Tutorial Session - Week 9

Exercise 1:
Consider three unit-demand buyers and two items $a, b$ with

\[ v_{1,a} = 5, \quad v_{1,b} = 3, \quad v_{2,a} = 3, \quad v_{2,b} = 4, \quad v_{3,a} = 2, \quad v_{3,b} = 2. \]

Determine the Walrasian price vector which is determined by the VCG mechanism.

Exercise 2:
Have a look at the single-minded combinatorial auction with three bidders (red, blue, green) and items $a, b, c$ which is depicted below. State all values of $x \in \mathbb{R}_{\geq 0}$ such that there exists a Walrasian equilibrium and prove your claim.

![Diagram of an auction with items a, b, c and bidders red, blue, green with values 1, 1, x for each item and bidder combination.]