

A few completely voluntary problems

1. Consider the social choice problem considered in class:
 - (a) Define/explain what a social welfare function is.
 - (b) Define “non-dictatorship”.
 - (c) Define what it means for F to satisfy the Pareto criterion.
 - (d) Explain what it means for a social welfare function to be i) non-dictatorial, ii) satisfy the Pareto principle, iii) satisfy independence of irrelevant alternatives.
 - (e) Give a concrete example of a social welfare function that is non-dictatorial and satisfies the Pareto principle, but violates the independence assumption.
 - (f) Give a concrete example of a social welfare function that is satisfies the Pareto principle and the independence assumption, but is dictatorial.

2. Again, consider the social choice problem considered in class.
 - (a) Suppose that A consists of two alternatives, $A = \{x, y\}$. Construct a social welfare function that satisfies non-dictatorship, the Pareto principle, and the independence assumption.
 - (b) Suppose that A is a line segment on the real line (for example $[0, 1]$, all numbers between zero and one). Are there any restrictions on the preferences that you can make so that the social welfare function that you constructed in part a satisfies non-dictatorship, the Pareto principle, and the independence assumption.?