Problem k) In class we defined a parking function to be a sequence $(a_1, \ldots, a_n)$ of preferred slots for which all cars are able to park. Recall that cars enter a one-way street with parking spots labeled from 1 through n, that a_i is the preferred parking spot of car i, and that each car tries to park in its preferred spot if available, or otherwise in the first available spot after that.

In problem 144, a different definition of a parking function is given. Prove that the two definitions are equivalent.

Problem l) Let $k < n/2$. Construct a bijection f from k-element subsets of $[n]$ to $(n-k)$-element subsets of $[n]$ with the property that for every k-element subset S, one has $S \subset f(S)$ (that is, each set is contained in its image).