

Assignment #9: Due Friday, 12/11/09

Part I:

*For the proofs below, if you're being asked to prove one of the theorems from the text, you may use any of the theorems stated in class, any theorem stated in the text **before** the one you're proving, and any theorems proved in previous homework problems. If the theorem you're being asked to prove is not one of the theorems from the text, then in addition you may use any theorems from Chapters 1–11.*

1. Eccles, page 132, Exercises 10.1, 10.2.
2. Eccles, page 143, Exercises 11.1, 11.5. [For 11.1, instead of following the solution in the back of the book, try the following hint: If $f: \mathbb{N}_n \rightarrow X$ is a surjection, define a map $g: X \rightarrow \mathbb{N}_n$ by letting $g(x)$ the smallest element $i \in \mathbb{N}_n$ such that $f(i) = x$. Show that g is well-defined, and use Proposition 11.1.4.]
3. Eccles, page 184, Problem 9, 10, 11. [Hint for #9: Use the theorem I stated in class on properties of finite sets.]

Extra Credit:

Eccles, page 185, Problem 20.