INTRODUCTION TO HIGHER MATHEMATICS V2000

Homework, week 10, due December 1

Read the proof of the (Cantor)-Schröder-Bernstein in Dumas-McCarthy carefully. You may be interested to watch a slightly different different proof of that Theorem on YouTube:
https://www.youtube.com/watch?v=IkoKttTDuxE

1. Cardinality: Dumas-McCarthy, Exercises 6.3, 6.5, 6.13.

2. Dumas-McCarthy, Exercise 6.17.

3. Construct an explicit bijection between the open interval $(0, 1)$ and the closed interval $[0, 1]$.

4. (a). The set of finite subsets of $\mathbb{N}$ has the same cardinality as either $\mathbb{N}$ or $P(\mathbb{N})$. Which is it?

(b) Same question for *infinite* subsets of $\mathbb{N}$.

(c) Same question for finite *sequences* of elements of $\mathbb{N}$.