

Mathematics 2200H – Mathematical Reasoning

TRENT UNIVERSITY, Fall 2016

Assignment #11

The last at last!

Due on Thursday, 1 December.

Recall that two sets A and B have the same cardinality, usually written as $|A| = |B|$ for short, if there is a 1 – 1 onto function $f : A \rightarrow B$. The Schröder–Bernstein Theorem tells us that if there is a 1 – 1, but not necessarily onto, function from A to B , and another such function from B to A , then there must also be a 1 – 1 onto function between the sets.

1. Show that $|\mathbb{R}| = |\mathcal{P}(\mathbb{N})|$. [10]