Maths for Computing
Tutorial 6

1. Give a bijection from (0,1] to (0,1).

2. Prove that the union of countably many countable sets is countable.

3. Prove that if A is countable but B is not, then $B \setminus A$ is uncountable.

4. Prove that $|P(\mathbb{Z})| = |\mathbb{R}|$, where $P(\mathbb{Z})$ is the power set of $\mathbb{Z}$.

5. Prove that there can be no bijection between $\mathbb{Z}^+$ and $P(\mathbb{Z}^+)$.