Feel free to work with other students on these problems. However all written work should be your own. Also, be sure to give written credit, on the assignment, for any ideas you get from other people.

All proofs should be as short and clear as possible. If you deviate from the style of proof given in the notes you should only do so consciously and for good reason.

Exercise 10.1. If $h\colon A \to B$ is an injection and $C \subset A$, then $h[A \smallsetminus C] = h[A] \smallsetminus h[C]$.

Exercise 10.2.

(a) $\aleph_0 + 5 = \aleph_0$.

(b) $\operatorname{card} \mathbb{R} + \operatorname{card} \mathbb{R} = \operatorname{card} \mathbb{R}$.

Exercise 10.3. $\aleph_0^{\aleph_0} = 2^{\aleph_0}$.

Exercise 10.4 (Enderton, page 6). Let κ be a nonzero cardinal number. Show that there does not exist a set to which every set of cardinality κ belongs.