

Due Wed, April 16th, at 11:59pm on Gradescope

Please show your work. Where it makes sense, your solutions should be written in full sentences. Recall that proof-writing problems will be graded on correctness as well as clarity and exposition.

From Enderton:

1. p. 26, Exercises 2, 6, 8
2. p. 32-33, Exercise 19, 25
3. p. 33-34, Exercises 29, 32
4. p. 38-39, Exercises 2, 4

Additional problems:

5. Let $\langle x, y \rangle' = \{\{x, \emptyset\}, \{y, \{\emptyset\}\}\}$ (Hausdorff's definition). Show that this defines an ordered pair in the following sense: $\langle x, y \rangle' = \langle u, v \rangle'$ if and only if $x = u$ and $y = v$.
6. A set A is defined to be *transitive* if every element of A is also a subset of A , that is $\forall x, (x \in A \implies x \subseteq A)$. Prove that for every transitive set A , the power set $\mathcal{P}A$ is also transitive.