

Solutions to HW 2.

1. We have explained why the Russell class $\mathcal{R} = \{x \mid x \notin x\}$ is not a set. Explain why the following classes are also not sets.
 - (a) The class \mathcal{C} of all sets.
 - (b) The class \mathcal{D} of all 1-element sets.(Hints: For (a), show that the assumption that \mathcal{C} is a set allows you to construct \mathcal{R} as a set. For (b), show that the assumption that \mathcal{D} is a set allows you to construct \mathcal{C} as a set.)
2. Your friend offers a wager that, under the Kuratowski encoding, the ordered pair $(0, 1)$ equals the natural number three. Should you take the wager? Explain.
3. Show that $\emptyset \times A = \emptyset$.