Exercise 3.ii.35. *[1Y9]* *Let be given a, b, x, y.*

1. *Show that in the hypothesis*

$$\{a, b\} = \{x, y\}$$

   you have that

$$(a = b) \iff (x = y) \iff a = b = x = y \quad .$$

2. *In particular, you deduce that if*

$$\{a\} = \{x, y\}$$

   then $a = x = y$.

3. *Then show that if we assume that the four elements a, b, x, y are not all the same, then we have*

$$\{a, b\} = \{x, y\}$$

   if and only if $a = x \land b = y$ or $a = y \land b = x$.

To show the above be as precise as possible: use the axiom of extensionality *[1Y8]*, *the axiom of pairing* *[1Y3]* *and the tautologies shown in the previous section (or other elementary logical relationships).*

Solution 1. *[1YB]*