1

Begin by considering the rendering of $\mathcal{A} \Leftrightarrow \mathcal{B}$.

This is:

$$\neg \vee \neg \vee \neg \mathcal{A} \mathcal{B} \neg \vee \neg \mathcal{B} \mathcal{A}.$$

So it has eight symbols together with two occurrences of $\mathcal{A}$ and two of $\mathcal{B}$

2

Next consider the assemblage corresponding to $\{x\}$. Here I am basically in agreement with ARDM's calculation. It has length 107 and 10 occurences of x. However, it has 26 links rather than 14. [The difference is tracable to the use by ARDM of the incorrect version of Proposition 3.7 in the text.]

3

We turn now to the assemblage corresponding to $\{x, y\}$. Our calculation will closely parallel that given for $\{x\}$ in the text.

$\{x, y\}$ is the term $\tau_w \forall z(z \in w \Leftrightarrow [z = x \vee z = y])$.

The assemblage corresponding to $[z = x \vee z = y]$ has length 7, no links, 2 occurrences of z and 1 occurrence of each of x and y.

Call $f(x, y, z, w)$ the assemblage corresponding to $(z \in w \Leftrightarrow [z = x \vee z = y])$. Using the result in the first paragraph of this note one sees easily that this has length $(8 + (2 * (7 + 3)) = 28$. It has 6 occurrences of z and 2 each of x, y and w. And it has no links.

Next consider the assemblage corresponding to $\forall z\, f(x, y, z, w)$.

It has length $(6 + 1) \cdot (28 + 1) + 1 = 204$. It has 14 occurrences of each of x, y and w. And it has 36 links.

Finally we come to the assemblage corresponding to $\{x, y\}$. It has length 205. It has 14 occurrences of each of x and y. And it has 50 links.

4

We now consider the assemblage corresponding to the Kuratowski pair (x, y). It is obtained by substituting the assemblages corresponding to $\{x\}$ and $\{x, y\}$ for x and y respectively in the assemblage corresponding to $\{x, y\}$.

It has length $(205 - 28) + (14 * (205 + 107)) = 4545$. It has $14 * (10 + 14) = 336$ occurrences of x and $14 * 14 = 196$ occurrences of y. And it has $50 + (14 * (26 + 50)) = 1,114$ links.

I suspect that you defined the Kuratowski pair by using the τ construction rather than substitution. This is a very inefficient way to proceed.