This assignment is due on Tuesday February 26th at the beginning of class. You may either handwrite this assignment or typeset it using LaTeX; either way please submit a .pdf file through UTORsubmit. Please also submit a hard copy in class.

1. Finish the In-Class Activity about ordinals and cardinals started in class on Thursday 14 February.

2. Show that the order relation $\leq$ defined on cardinal numbers is
   a) reflexive
   b) transitive.

3. Prove that similarity of well-ordered sets is an equivalence relation.

4. The terms *partial order* and *total order* were defined using the non-strict inequalities $\leq$. Give the equivalent definitions of each term using strict inequalities $<$ instead of $\leq$. *(Hint: for example, we don't want $<$ to be reflexive.)*

5. Show that the order relation $<$ defined on the ordinal numbers is transitive.