Exercise Set 5

1. Insert the following numbers into an initially empty red-black tree: 8 2 4 7 5 3 1 6.
(To solve this problem correctly, you will need to refer to the text-book for details about red-black trees in addition to the main ideas discussed in class).

2. Design a "worst-case" red-black tree with 10 nodes, i.e., a red-black tree with the longest possible path from the root to a leaf.

3. Can you use any of the previously studied data structures (e.g. heaps, red-black trees) for the Union-Find problem? Explain your answer.

4. Compute $A_3(2)$.

5. Design a function that is asymptotically slower than even the inverse Ackermann's function.