CSE 373 Review Problems

These problems are not to be handed in. They are intended to help you prepare for the midterm.

1. Can the zig-zag operation for splay tr ees be performed as a sequence of two single rotations? Same question for the zig-zig operation.

2. Give an example of an operation that is easy to perform on binary search trees but hard to perform on binary heaps.

3. Give an example of an operation that is easy to perform on binary heaps but hard to perform on binary search trees.

4. Give an algorithm for deleting the element in location i of a binary heap.

5. Give an addressing scheme for d-ary heaps which permits the easy computation of the address of the parent of a node, and the address of the kth child of a node, given the address of the node itself.

6. Give the result of performing the DeleteMin operation on the following binomial queue.

7. Suppose we could implement priority queues so that, on a n-node priority queue, the Delete-Min and Insert operations could each be done in time $o(\log n)$. Show that we could then sort n numbers in time $o(n \log n)$, thus violating the lower bound for sorting.