

# CSE 332: Data Abstractions

## QuickCheck: Heaps Solutions (due Thursday, July 9)

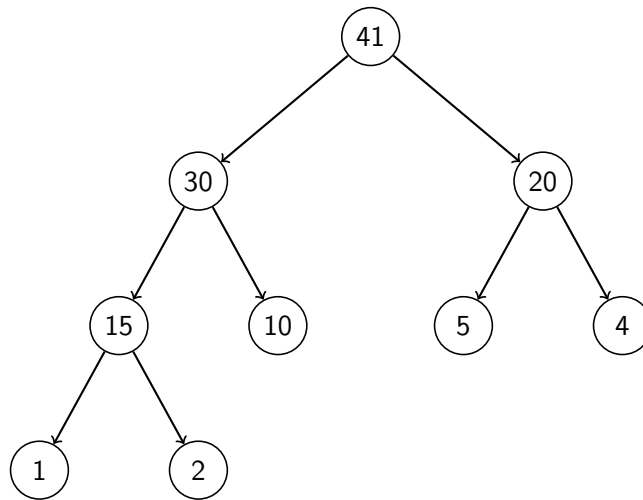
### 0. You're My Priority!

(a) Insert the following numbers into a **max heap** in the order provided:

10, 15, 5, 2, 20, 30, 4, 1, 41

DO NOT use `buildHeap`; just insert them one by one. Showing your work might be prudent on a real exam (for partial credit).

**Solution:**



(b) Re-order the numbers in such a way that (1) the result is an identical heap, and (2) the number of comparisons is minimal. (i.e. re-order the input to minimize the number of nodes that have to be percolated)

Answer: 

41	30	20	15	10	5	4	1	2
heap[0]	heap[1]	heap[2]	heap[3]	heap[4]	heap[5]	heap[6]	heap[7]	heap[8]

(c) Draw out the array version of the heap from part (a).

Answer: 

41	30	20	15	10	5	4	1	2
heap[0]	heap[1]	heap[2]	heap[3]	heap[4]	heap[5]	heap[6]	heap[7]	heap[8]