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1. Fill in the blank: To build a heap from an array of n elements requires _____.

A. [Your Answer] at least $n/2$ calls to `HeapifyUp`
B. [Correct Answer] at most $n/2$ calls to `HeapifyDown`
C. at most $n/2$ calls to `HeapifyUp`
D. None of these describe the `BuildHeap` algorithm.
E. at least $n/2$ calls to `HeapifyDown`

2. What is the worst case running time of `findMin` on a min heap (a function that finds and reports the minimum key, but does not remove it)? In answering this question you should assume the best possible implementation given the constraints, and also assume that every array is sufficiently large to handle all items (unless otherwise stated). The variable n represents the number of items.

A. $O(\log n)$
B. [Correct Answer] [Your Answer] $O(1)$
C. None of the other options
D. $O(n)$
E. $O(n^2)$
F. $O(n\log n)$

3. Consider a max heap, represented by the array: 40, 30, 20, 10, 15, 16, 17, 8, 4. Now consider that a value 43 is inserted into this heap. After insertion, the new heap is

A. 40, 30, 20, 10, 43, 16, 17, 8, 4, 15
B. 40, 43, 20, 10, 15, 16, 17, 8, 4, 30
C. 40, 30, 20, 10, 15, 16, 17, 8, 4, 43
D. None of the other options
E. [Correct Answer] [Your Answer] 43, 40, 20, 10, 30, 16, 17, 8, 4, 15

4. For a minHeap implementation, assume we use the 0th index of the array to store the root (instead of index 1). Given an element at position i, what would be the position of its right child (if one exists)?

A. None of other options
B. [Correct Answer] [Your Answer] $2i + 2$
C. $2i + 1$
D. $2i - 1$
E. $2i$

5. Complete the statement: In a minHeap, the nodes on any _____

A. None of the other choices is accurate.
B. [Correct Answer] [Your Answer] path from root to leaf are non-decreasing.
C. level from left to right are non-increasing.
D. level from left to right are non-decreasing.
E. path from root to leaf are non-increasing.