1. True/False

T/F: When removing from a heap, the highest priority item is pulled from the bottom of the heap to help keep it balanced.

Answer: False, items are removed from the top of the heap. (Page 511)

1. Multiple Choice

Which of the following is a property of a heap?

1. The lowest level of the “tree” is always filled from right to left.
2. The right-most item in the lowest level of a heap is always the lowest priority item (assuming low priorities sink and high priority items rise).
3. The lowest level of the “tree” is always filled from left to right.
4. When inserting into a heap, the new item is placed on top and it “sinks” or “rolls” down the heap until it “settles” into its appropriate place.
5. When removing from a heap, the element with the lowest priority is removed from the bottom and the other elements in the heap then “settle” until the heap is reformed and satisfies all properties of a heap.

Answer: C. The heap must always be representable as a complete tree with the lowest level completed from left to right. (Page 515)

1. Fill in the Blank

The root of a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ contains the largest value in the heap.

Answer: max-heap. Max-heaps let higher priority items percolate upwards. (Page 522)

1. Short Answer or Code

Draw a picture indicating how the following items inserted in a heap in the following order will appear (high priorities rise): 1, 3, 5, 7, 9, 0, 2, 4, 6, 8.

Answer:

9

\_\_\_/ \\_\_\_

7 8

/ \ / \

4 6 3 2

/ \ / \ / \ / \

1 5 0

(Page 521)