

6.5-2.

Illustrate the operation of $\text{MAX-HEAP-INSERT}(A, 10)$ on the heap $A = \langle 15, 13, 9, 5, 12, 8, 7, 4, 0, 6, 2, 1 \rangle$.

Answer.

Figure 1 shows the operation of $\text{MAX-HEAP-INSERT}(A, 10)$ on the heap $A = \langle 15, 13, 9, 5, 12, 8, 7, 4, 0, 6, 2, 1 \rangle$.

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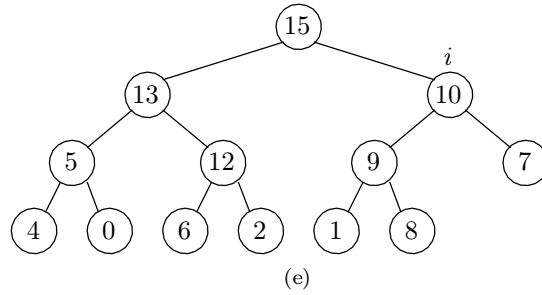
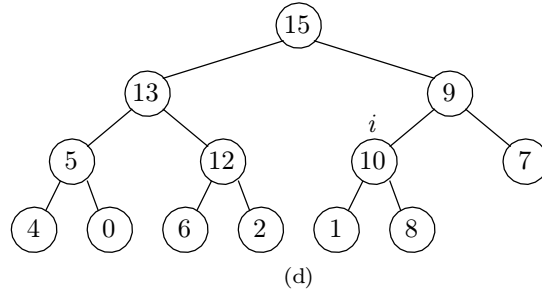
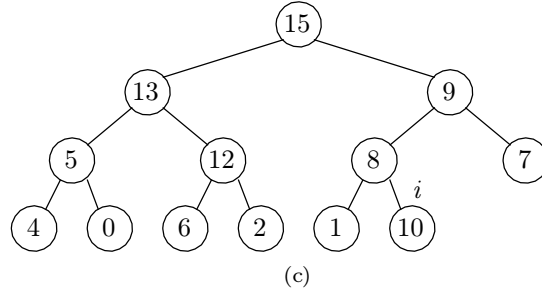
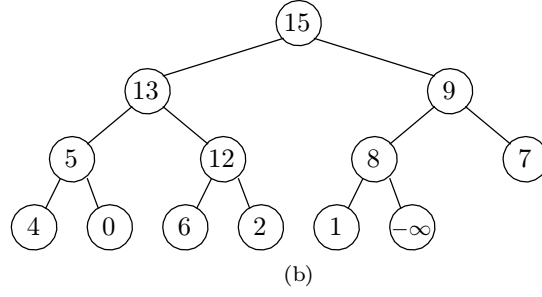
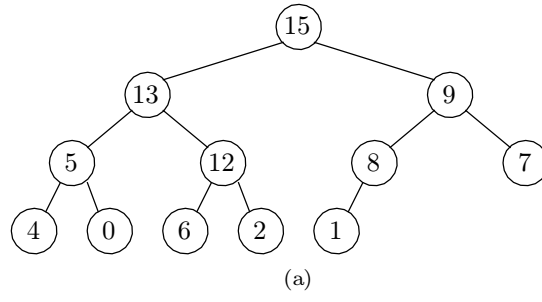


Figure 1. The process generated by evaluating $\text{MAX-HEAP-INSERT}(A, 10)$. (a) The max-heap of $A = \langle 15, 13, 9, 5, 12, 8, 7, 4, 0, 6, 2, 1 \rangle$. (b) After the execution of lines 1–2, the heap is appended by a new node with key $-\infty$. (c)–(d) The process generated by HEAP-INCREASE-KEY to set the key of this new node to 10. (e) After HEAP-INCREASE-KEY terminates, the max-heap property now holds again.