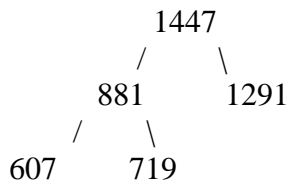


2) (5 pts) ALG (Heaps)

(a) (1 pts) In her computer science courses, Maria has learned some interesting things about prime numbers and data structures. She has decided to store some prime numbers in a Max-Heap using the tree representation of heaps. If Maria has stored 125 prime numbers, how tall would the Heap be?

(b) (2 pts) Here is the Max-Heap after 5 insertions. Clearly draw a circle in the location where the next prime will initially be inserted. Also draw a pointer from the parent of this node initially and clearly indicate whether or not the pointer is a left or right pointer.



(c) (2 pts) Show each step of inserting 1609 into the Max-Heap from part (b). Please draw a different picture for each of the different positions 1609 will be in the heap.