

Name: _____

Name: _____

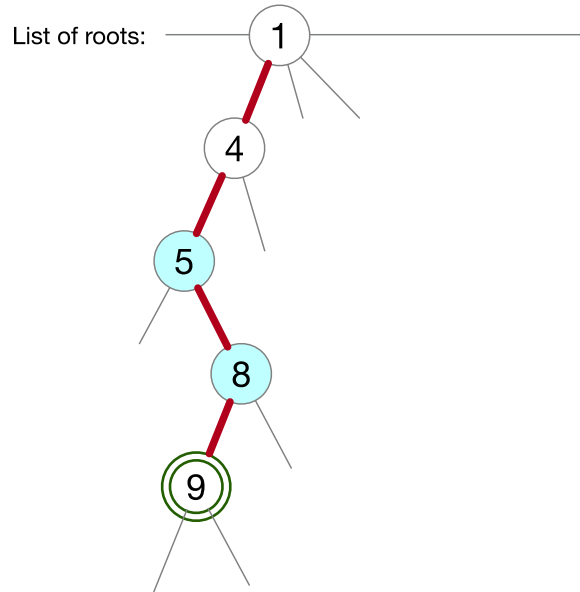
Name: _____

Name: _____

Algorithms, Fibonacci Heaps - Thursday, March 11, 2021

Draw the resulting Fibonacci Heap after the Decrease-Key operation is performed to reduce the key 9 to 6. The blue nodes (5 and 8) have already been marked as losers. Note, this will take several steps, and you can use the space around the code to work out your intermediate steps.

Initial Fibonacci Heap



Final Fibonacci Heap

List of roots: _____

```
FUNCTION FibPQDecreaseKey(pq, value, newKey)
    node = pq.lookupTable[value]
    node.key = newKey
    parent = node.parent
    IF parent != NONE && node.key < parent.key
        LOOP
            parent.children.remove(node)
            pq.heaps.append(node)
            IF node.key < pq.minNode.key THEN pq.minNode = node
            node.isLoser = FALSE
            BREAK IF parent == NONE || parent.isLoser == FALSE
            node = parent
    IF parent != NONE
        parent.isLoser = TRUE
```