

Name: _____

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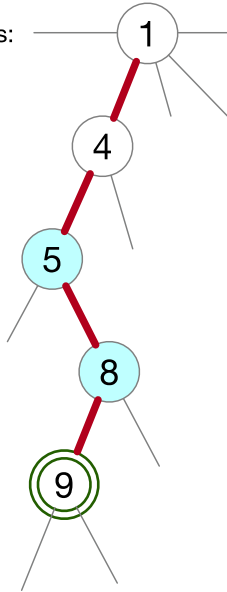
Fibonacci Heaps

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: _____



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
```