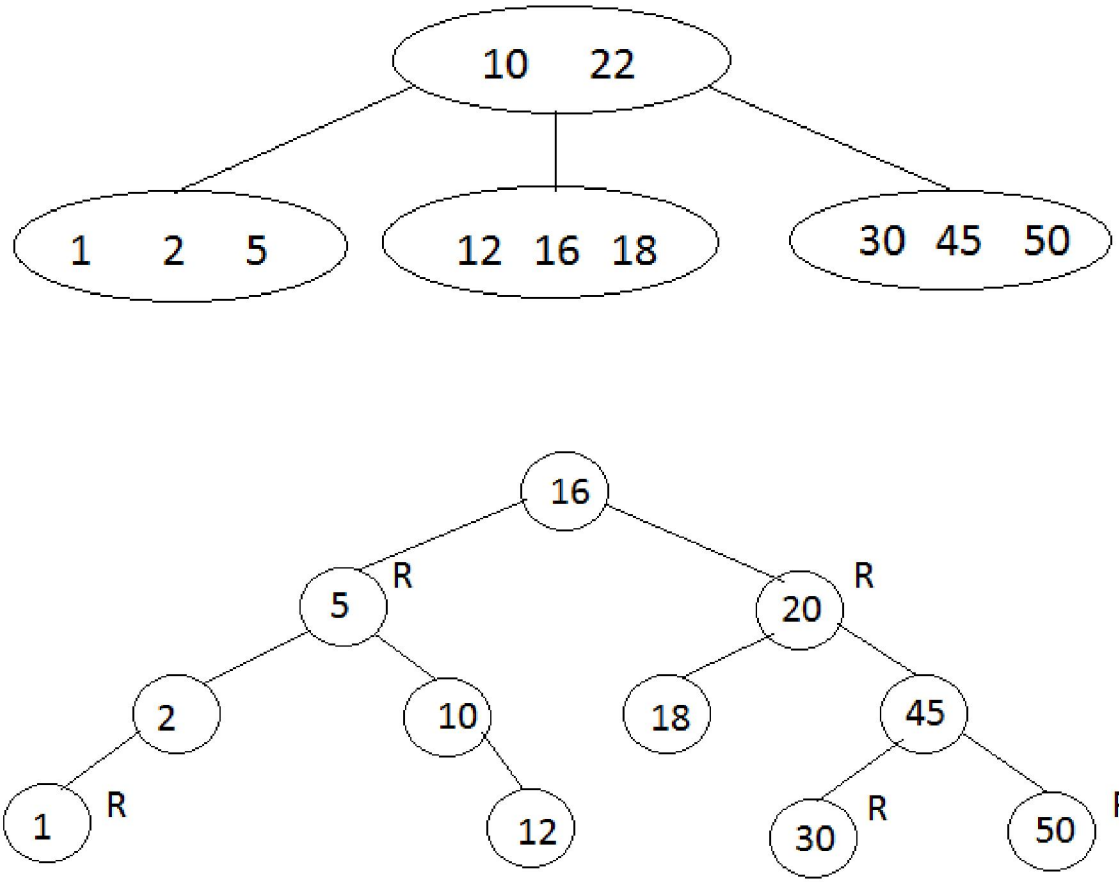
Assignment 9

R-3.11



R-3.14

- **a)** False, because the root node can't be red
- **b)** True
- **c)** True, there is only one unique (2,4) associated with a red-black tree
- **d)** False, a single (2,4) tree could have different red-black tree representations

C-3.10

```
Algorithm findAllInRange(k1,k2)
        S ← new sequence
        V ← T.root()
        findAllInRange(k1, k2, v, T, S)
        return S.elements()
Algorithm findAllInRange(k1,k2, v, T, S)
        If T.IsExternal(v) then
                Return
        Else
          If key(v) > k1 then
                findAllInRange(k1, k2, T.leftChild(v), T, S)
         if key(v) ≥ k1 ∧ key(v) ≤ k2 then
                S.insertLast(key(v))
         If key(v) < k2 then
                findAllInRange(k1, k2, T.rightChild(v), T, S)
```