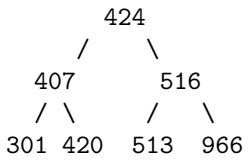
# Übungsblatt 6

*Truong, Diebel*

## Aufgabe 2

a.

- Keys from 1 to 1000
- Search till key 424



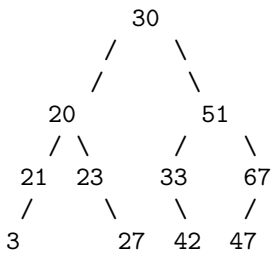

→ 2. Reihe ist die richtige Folge

b. (not sure)

- Left subtree: 424 - 333 = 91
- Right subtree: 601 - 511 = 90

## Aufgabe 3

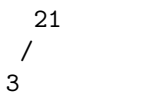
a. Folge: 3,21,27,23,20,42,33,47,67,51,45,30



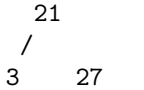

b.

- Can we construct a binary tree based on the sequence of Postorder ? Yes
- Example from a. for easy context
- Folge: 3,21,27,23,20,42,33,47,67,51,45,30
  - Last index is always the root → 30
  - All elements smaller than root are from the left subtree, bigger than root are from the right subtree
  - 3,21,27,23,20 from left, 33,37,67,51,45 from right
  - Analyze left subtree:

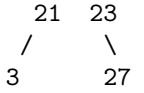
- $3 < 21 \rightarrow 3$ is child, left side of parent 21



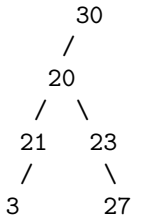

- $27 > 21 \rightarrow 27$ same level as 3




- $23 < 27 \rightarrow 23$ same level as 21, 27 is child, right side of parent 23




- 20 > left child 21 and 20 < right child $23 \rightarrow 20$ is parent of child 21 and 23, and 20 left child of root 30




- Exact same algorithm with right subtree