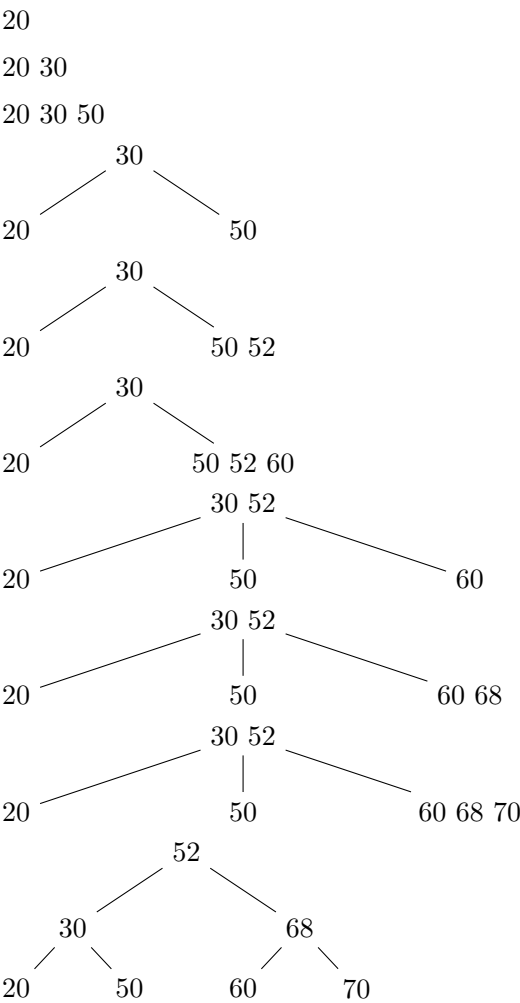
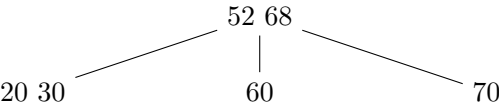


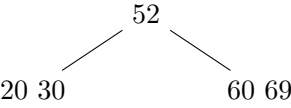
1 9.14



删除 50:



删除 68:



2 9.15

高度为 h 的三阶 B-树, 每一层最多节点:

$$\begin{aligned} k = 1 & \text{-----} 3^0 \\ k = 2 & \text{-----} 3^1 \\ k = 3 & \text{-----} 3^2 \\ k = 4 & \text{-----} 3^3 \\ & \vdots \\ k = h & \text{-----} 3^{h-1} \end{aligned}$$

高度为 h 的三阶 B-树, 每一层最少节点:

$$\begin{aligned} k = 1 & \text{-----} \lceil \frac{3}{2} \rceil^0 \\ k = 2 & \text{-----} \lceil \frac{3}{2} \rceil^1 \\ k = 3 & \text{-----} \lceil \frac{3}{2} \rceil^2 \\ k = 4 & \text{-----} \lceil \frac{3}{2} \rceil^3 \\ & \vdots \\ k = h & \text{-----} \lceil \frac{3}{2} \rceil^{h-1} \end{aligned}$$

则叶子节点数目: $[2^{h-1}, 3^{h-1}]$