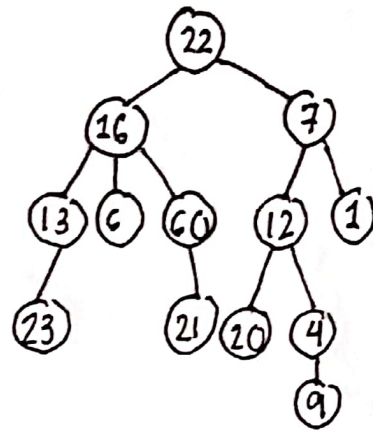


- 6) Children of node 16. **13, 6, 60**  
 7) Parent of node 1. **7**  
 8) Siblings of 23. **No siblings**  
 9) Ancestors of 9. **4, 12, 7, 22**  
 10) Descendants of 16. **13, 6, 60, 23, 21**  
 11) Leaves. **23, 6, 21, 20, 9, 1**  
 12) Non-Leaves. **22, 16, 7, 13, 60, 12, 4**  
 13) Depth. Node 4. **Depth 3**  
 14) Degree of the tree. **Degree = 3**  
 15) Height of the tree. **Height = 4**  
 16) Weight of the tree. **Weight = 6**  
 17) Is a tree a binary tree? **No**  
 18) Removing 6, is the tree a full binary tree? **Yes**  
 19) Removing 6, is the tree a complete binary tree? **No**  
 20) Is a full binary tree complete? **No**  
 21) Is a complete binary tree full? **Yes**  
 22) How many leaves does a complete n-ary tree of height h have?



- 23) What is the height of a complete n-ary tree with m leaves? **(23)  $\log_n m = \log_4 16 = 2$**   
 24) What is the number of internal nodes of a complete n-ary tree of height h? **(24)  $\frac{n^h - 1}{n - 1} = \frac{4^3 - 1}{4 - 1} = \frac{63}{3} = 21$**   
 25) What is the total number of nodes a complete n-ary tree of height h have? **(25)  $n = \frac{2^{(h+1)} - 1}{4 - 1} = \frac{2^{(4+1)} - 1}{4 - 1} = \frac{31}{3} = 31$**