

Q1 Part 2

Monday, 29 April 2024 7:39 PM

Part 2 Consider a tree data structure where every node has at most three children: left child l , middle child m and right child r . We call it a **ternary tree**.

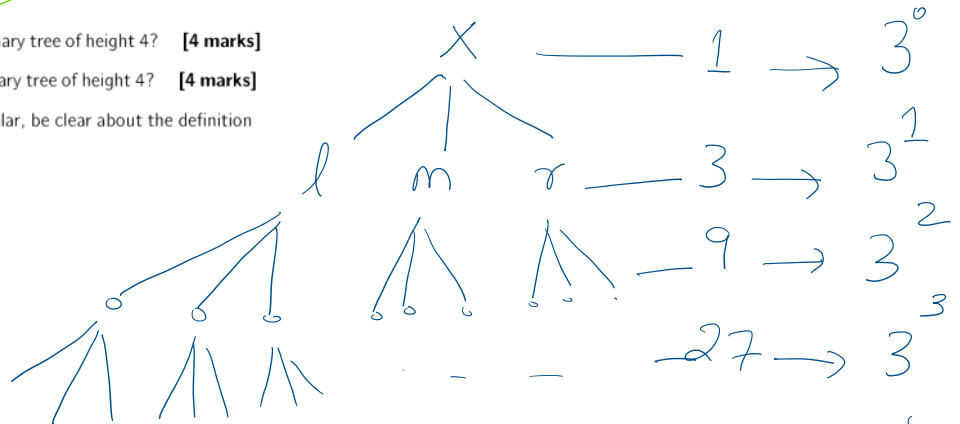
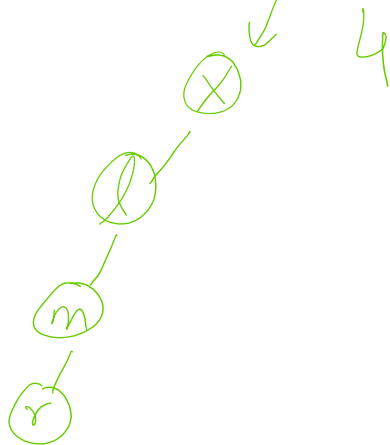


40

(d) Give the maximum possible number of nodes of a ternary tree of height 4? [4 marks]

(e) Give the minimum possible number of nodes of a ternary tree of height 4? [4 marks]

Briefly explain how you compute these numbers. In particular, be clear about the definition of height you are using.



$$3^0 + 3^1 + 3^2 + 3^3$$

$$1 + 3 + 9 + 27 = 40$$

$$\rightarrow 3^4$$