1. Construct all (non-isomorphic) rooted trees of heights from one to four, that have five vertices [1]. Note that there is one of height one, four of height two, three of height three, and one of height four.

2. Construct two non-isomorphic rooted trees both having twelve vertices, six leaves, and height four [1].

3. Calculate the minimum height of a ternary rooted tree with eleven leaves.

4. Consider a graph with eight vertices and twelve edges connected such that it can be drawn as a cube. Draw this graph, find a spanning tree of it and then high-light the edges on the drawing that are part of the tree [1].

5. Sketch all sixteen distinct spanning trees of the complete graph $K_4$.

6. Draw evaluation trees representing each of the following reverse Polish notation expressions.
   (a) $3\ 4\ +$
   (b) $3\ 4\ +\ 5\ \times$
   (c) $4\ 6\ -\ 4\ 6\ +\ \div$
   (d) $11\ 3\ \times\ 100\ 16\ 2\ \times\ +\ \div\ 75\ \times$

## References

[1] N. Biggs. *Discrete Mathematics*. Oxford science publications. OUP Oxford, 2002.