

**Math 3 - Discrete math (V3020)      Exercises, week 7 (due Oct 21st, 2025)**

1. Prove that every tree is a bipartite graph.
2. Which trees are complete bipartite graphs?
3. Draw every spanning tree of the graph in Fig. 1
4. Verify directly that there are exactly 125 labeled trees of 5 vertices. (Don't use Cayley's theorem.)
5. Study Chapter 3.3.3. on applications of trees. These examples illustrate more practical usecases for graph theory.

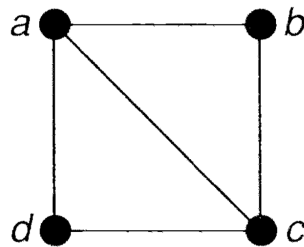


Figure 1: The graph for problem 3.