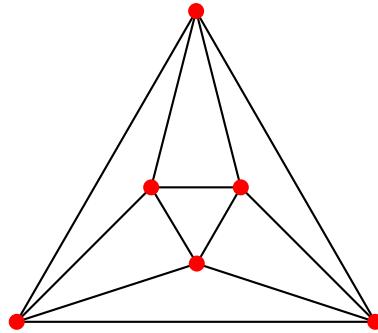


Exercise Sheet #12

Graph Visualization (SS 2025)

Exercise 1 – Stack and queue layouts of the Octahedron

Let G be the Octahedral graph shown below.



- What is the stack number of G ? Argue why. Give a corresponding stack layout of G as a drawing.
- What is the queue number of G ? Argue why. Give a corresponding queue layout of G as a drawing.

Exercise 2 – Queue number of arched leveled-planar graphs

In the lecture you have seen that every leveled-planar graph has queue number 1. Show that also every arched leveled-planar graph has queue number 1.

Exercise 3 – Determining the size of the largest rainbow

Deciding if, for a given graph with a specified vertex-order, the queue number is at most k can be solved efficiently. It requires to determine the size r of a largest rainbow in polynomial time. Describe a polynomial-time algorithm to determine r . What is the running time of your algorithm?

This is a bonus assignment and will not be graded nor will it be discussed.