

Assignment 4

Post Date: 22 May 2017 **Due Date:** 29 May 2017 **Tutorial:** 07 June 2017

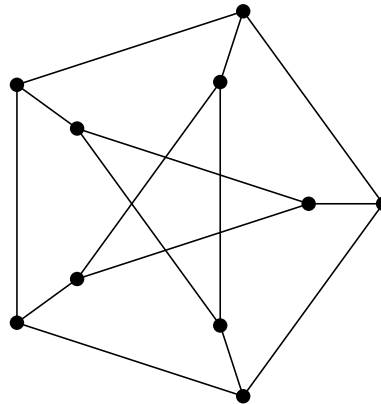
Problem 1: Petersen Graph

6 Points

Use

- (a) Kuratowski's
- (b) Wagner's, and
- (c) the signed constraint graph of the Left-Right Planarity Criterion

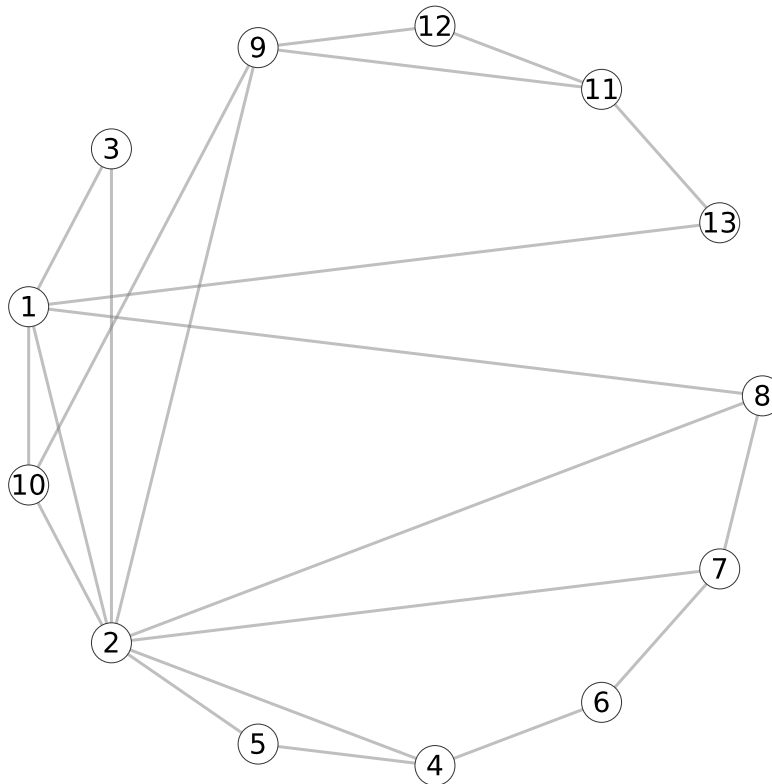
to show that the following graph is not planar.



Problem 2: Left-Right-Partition

4 Points

Consider the following graph:



- (a) Draw a DFS-tree of the graph as in the lecture notes. Start with vertex 1 and always choose the edge leading to the vertex with the smallest number when constructing the tree.
- (b) List all forks, the *lowpoints* of their edges, and their conflict pairs.
- (c) Give a valid LR-partition of the back-edges. Which edges could be assigned to either of the two classes in the partition?