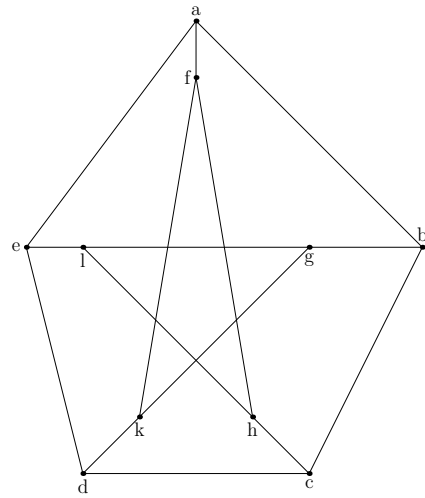
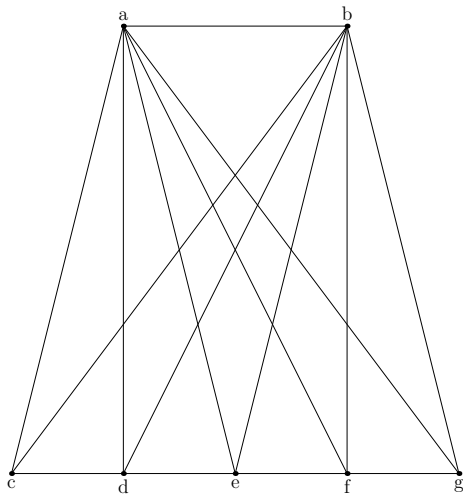


Graph Theory and Combinatorics MATH-42021/52021.
Home Work 3, due on Wednesday, SEPTEMBER 18
Instructor: Prof. Artem Zvavitch

Problem 1. *If a graph G has v vertices, all of which but one have odd degree, how many vertices of odd degree are there in \overline{G} , the compliment of G ?*

Problem 2. *Please, decide if the following two graphs are planar or not.*



Problem 3. *Please prove*

- *that every graph with strictly less than 5 vertices is planar.*
- *that every graph with strictly less than 6 vertices and strictly less than 10 edges is planar.*

Problem 4. *Prove that if a graph G has at least 11 vertices, then either G or its compliment \overline{G} must be nonplanar.*