You have eight days to create a solution and it must be done in a group of two or three students.

Write the name and enrolment number of each group member on every sheet that you hand in.

To get the permission for the oral exam, you must present at least one exercise and achieve 50% of the points.

You can earn bonus points by presenting your solution. At the beginning of every exercise session, you can mark the exercises that you want to present.

If a student is not able to present a correct solution although he/she marked the exercise as presentable, he/she will lose all of his/her points on the exercise sheet (except for presentation exercises).

If you want to prepare an optional presentation exercises to earn bonus points, communicate as soon as possible with your Tutor because only one student can present this type of exercise. You must hold a short presentation about an important proof of the lecture and are allowed to use the slides of the lecture.

Exercise 1 (2 points)

Prove the following statement: A circle graph (Kreissehnengraph) is a permutation graph if and only if it has an embedding such that an equator exists, i.e. an additional chord intersecting with all existing ones.

Exercise 2 (4 points)

Give an efficient algorithm that determines the size of a biggest clique in a given arc graph $G$.

Exercise 3 (4 points)

Consider the alternative algorithm for finding a maximum independent set in interval graphs that was considered in the lecture: We put the interval with the leftmost ending point into the set, then delete this and all intervals intersecting with it and start again. Prove that the independent set computed by this algorithm is optimal.

Exercise 4 (4* points)

Optional presentation exercise: Present the proof of the separator theorem from slide 1:63 to 1:72.