Assignment 5

Post Date: 11 May 2015   Due Date: 18 May 2015   Tutorial: 3 June 2015 (!)

Problem 1: Selfdual 4 Points

A plane graph $G$ is selfdual if $G$ is isomorph to its geometric dual $G^*$.

(a) Show that a selfdual graph with $n$ vertices has $2n - 2$ edges.

(b) Construct for each $n \geq 4$ a selfdual graph $G_n$.

Problem 2: Constructing the Dual 6 Points

Show how to construct the geometric dual of a plane graph in linear time.

You are given the cyclic order of the adjacent edges for each vertex. For full points, provide the pseudo-code with a description and a reasoning, why the code runs in linear time.