

Graph Theory 2, MATH 5450, Spring 2021

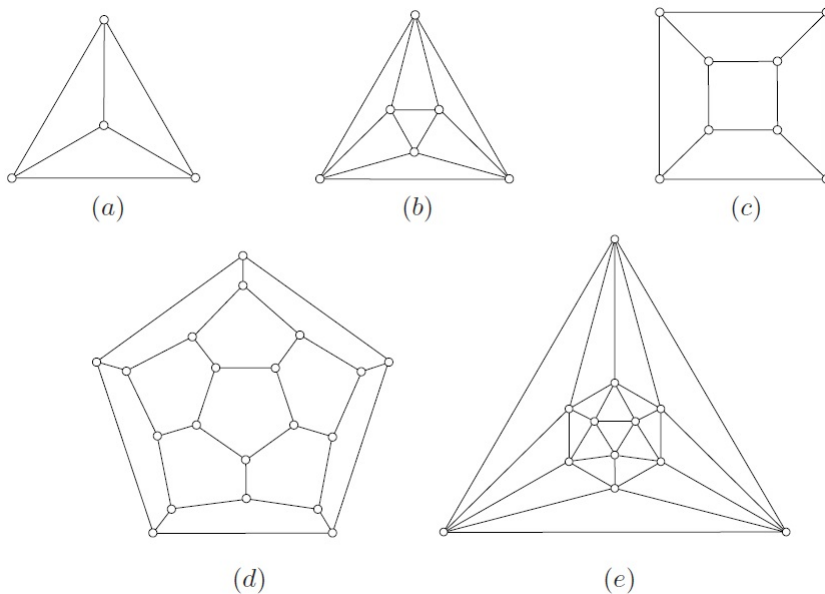
Homework 10, 10.2. Duality

Due Friday, April 16, at 1:40

Write in complete sentences!!! *Explain* what you are doing and convince me that you understand what you are doing and why. Justify all steps by quoting relevant results from the textbook, class notes, or hypotheses. Do not copy the work of others; **do your own work!!!**

10.2.1. (a) Prove that a graph is planar if and only if each of its blocks is planar. HINT: In showing that if each block of G is planar, then G itself is planar, use induction. You will need Proposition 10.5.

10.2.5. Determine the duals of the five platonic graphs (given in Figure 1.14 below).



10.2.7. Let B be a bond of a (connected) plane graph G . Prove that B^* is a cycle of the plane dual.