HOMEWORK #2

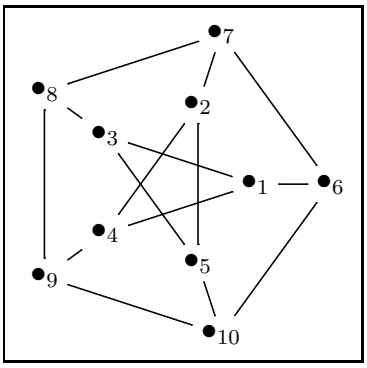
Problem 1. Number 1.4.12. Let G be a simple, regular graph with n vertices and 24 edges. Find all possible values of n and give examples of G in each case.

Problem 2. Up to isomorphism, find all simple graphs with degree sequence $(2, 2, 2, 2, 3, 3, 6)$.

Problem 3. Up to isomorphism, find all self-complementary graphs (defined on page 23) that have 4 or 5 vertices.

Problem 4. Given an example of a graph in which the length of the longest cycle is 10 and the length of the shortest cycle is 4. You do not need to give a proof that your graph satisfies these conditions.

Problem 5. The following is the Petersen graphs:



Find in this graph the

(a) an open trail of length 5,
(b) a closed walk of length 15,
(c) a path of length 9,
(d) a cycle of length 6.

This is a simple graph, so list just the vertices, not the intervening edges. Or just draw the walks in a readable fashion.