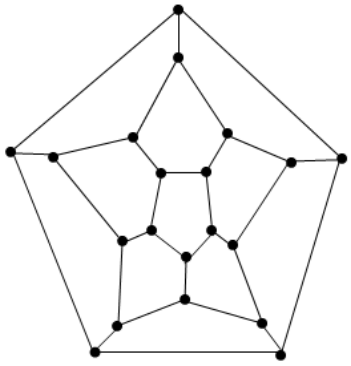
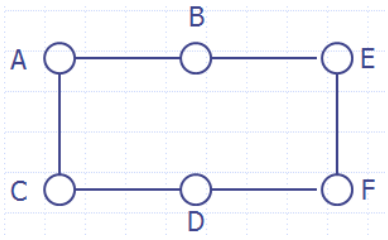
Lab 12
Due Tuesday 2 pm

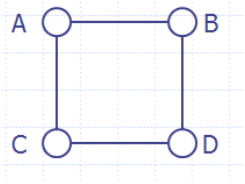
1. Does the following graph have a Hamiltonian cycle? If so, draw a spanning cycle.



2. Answer the following questions about the graph G having n = 6 vertices, below.
   a. Is G Hamiltonian?
   b. Can you find two non-adjacent vertices the sum of whose degrees is less than 6?



3. Illustrate the proof that the HamiltonianCycle problem is polynomial reducible to TSP by considering the following Hamiltonian graph—an instance of HamiltonianCycle—and transforming it to a TSP instance in polynomial time so that a solution to the HC problem yields a solution to the TSP problem, and conversely.



4. Show that TSP is NP-complete. (Hint: use the relationship between TSP and HamiltonianCycle discussed in the slides. You may assume that the HamiltonianCycle problem is NP-complete.)