

Discrete Optimization

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Hanoi 2011

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Name:

1 Graph coloring preparation

Tuesday Nov. 22

0. Color the vertices of the Petersen graph (Supplements in Week-3 folder) so that vertices connected by an edge are assigned different colors. Use as few colors as you can.
1. Do the same for the line graph of the Petersen graph.
2. Use the graph generation program to generate a graph with 20 vertices, density 2. Properly color its vertices by as few colors as you can.
3. On the graph you generated above apply the following scheme: Let the colors be numbered $0, 1, 2, \dots$. Color vertex number i by the smallest feasible integer. Thus we color vertex number 0 by 0. If vertex 1 is connected by an edge to vertex 0 it will be colored 1 if not, it will also be colored 0 etc.

Bring your coloring to class.