

Problems: Approximation Algorithms

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1. Design a 2 factor approximation algorithm for the maximum cut problem on edge-weighted graphs.
2. Show that the greedy algorithm for the set cover problem discussed in the class achieves an approximation ratio of $\ln k$ where k is the size of the largest set. Using this result, design a better than 2 factor approximation algorithm for the vertex cover problem when the maximum degree is at most 7.