

Approximation Algorithms

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1. The Steiner tree problem
 - (a) The MST approach. MST is polynomial time.
 - (b) Analysis.
 - (c) Tightness analysis.
2. The Traveling Salesman problem.
 - (a) Problem definition. Various variants. History. Importance. Current progress.
 - (b) Inapproximability.
 - (c) The metric case. Why should such a graph be complete?
 - (d) The MST-based heuristic.
 - (e) The Christofides heuristic.
3. Introduction to the the Multiway cut and k -cut problems.