Linear Programming and Constrained Optimization
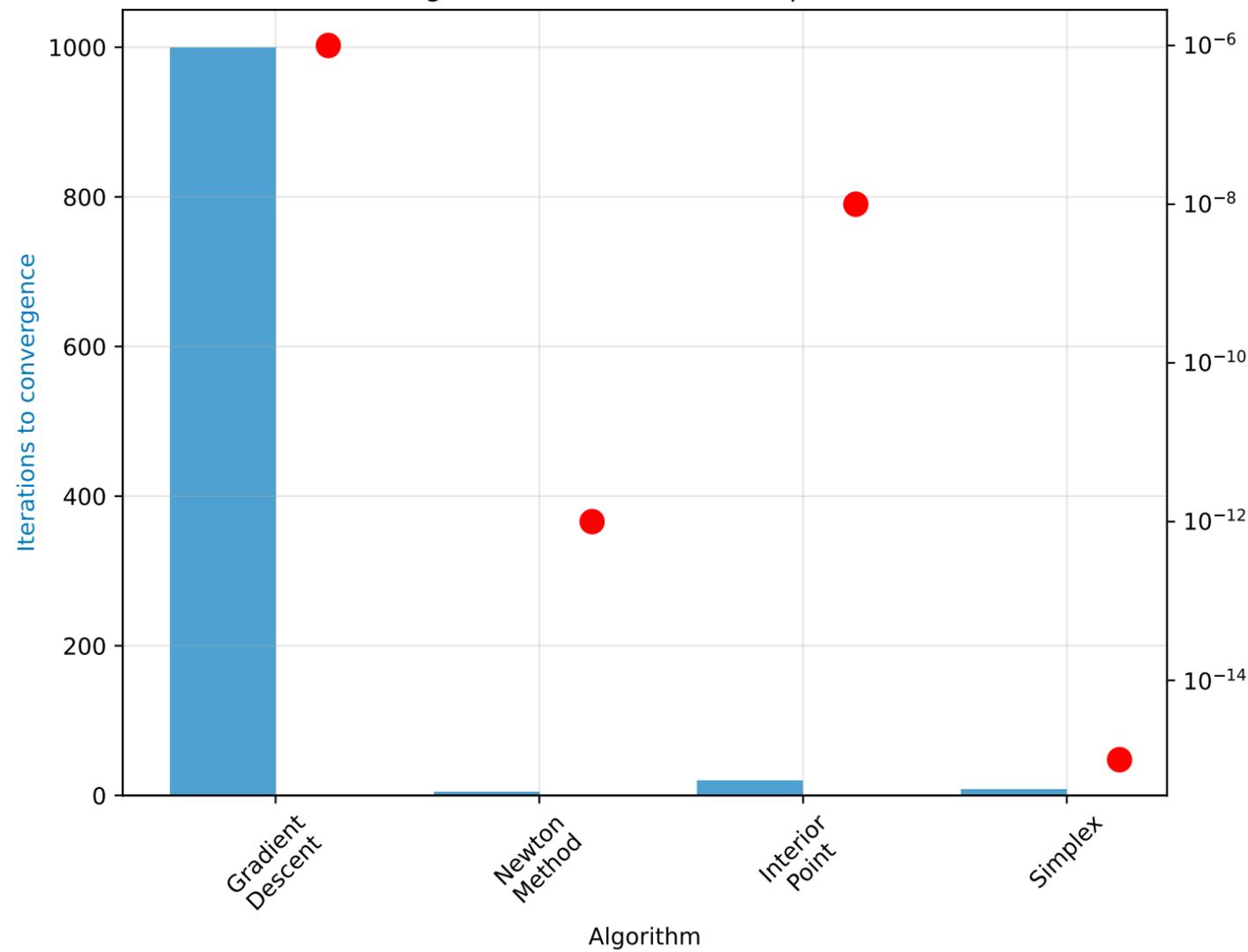
Linear Programming: Feasible Region

Legend:
- Feasible region
- x1 + x2 <= 4
- 2x1 + x2 <= 6
- ★ Optimal solution

Constrained Optimization

Legend:
- Feasible region
- x1 + x2 <= 3
- ● Unconstrained optimum
- ★ Constrained optimum
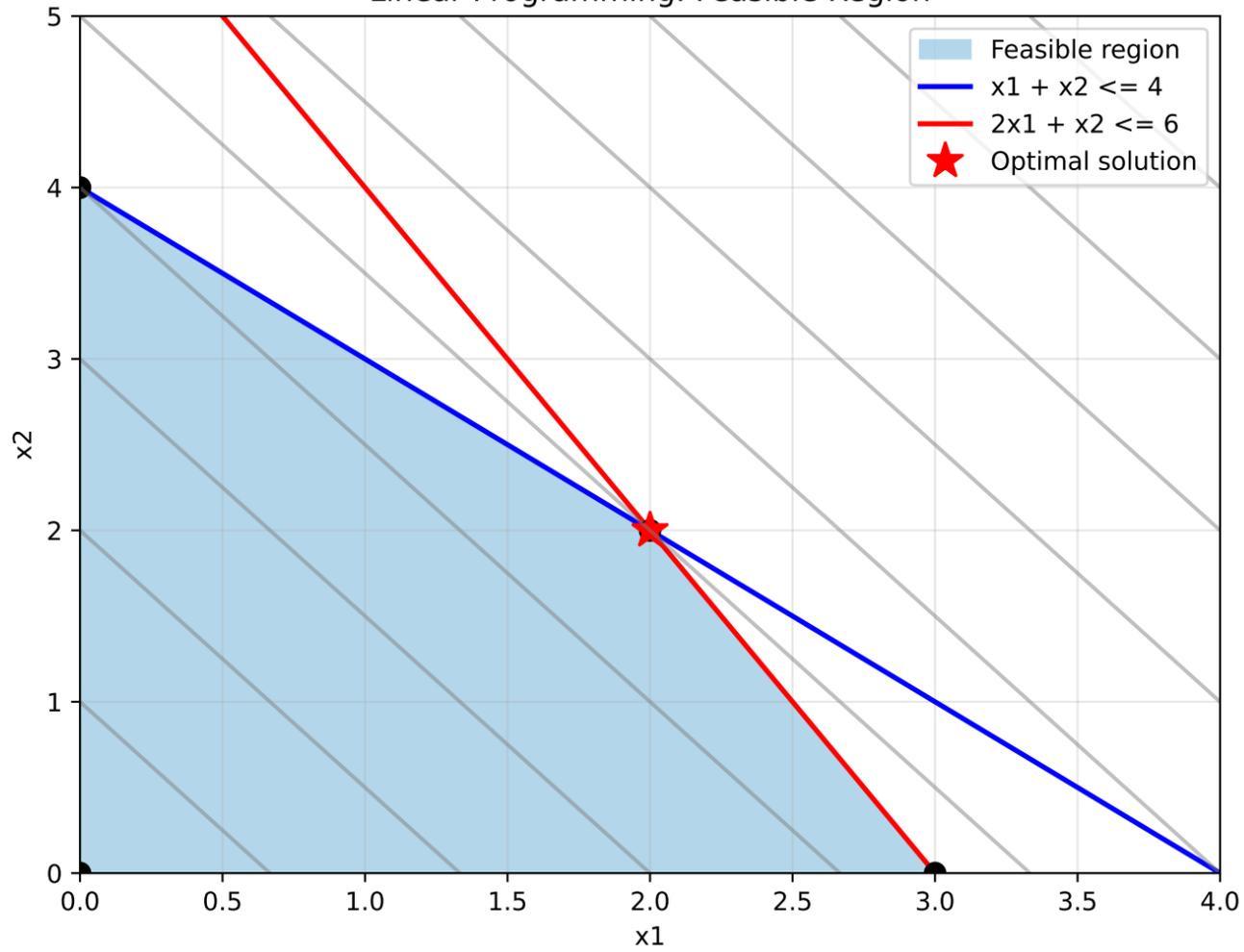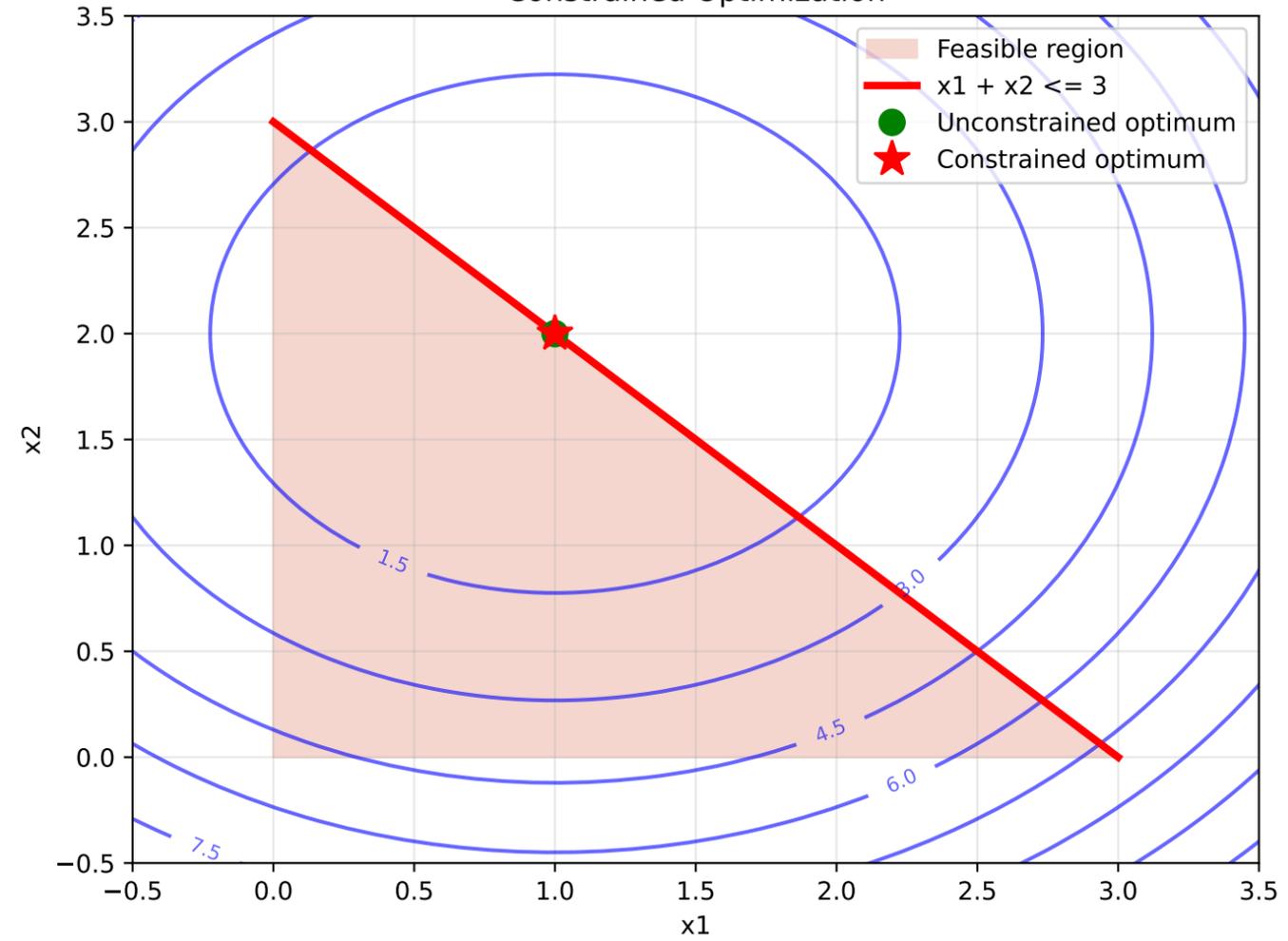
Algorithm Performance Comparison

Iterations to convergence (left axis), Final accuracy (right axis)

Algorithms: Gradient Descent, Newton Method, Interior Point, Simplex

Optimization Landscape

Legend:
- ★ Optimum

Objective function value: 0.00, 1.90, 3.79, 5.68, 7.58, 9.47, 11.37, 13.26, 15.16, 17.05