

MATH 460 – Objectives and Practice Exercises for Test #1 (Friday, September 30)

1. Understand the following terms:
 - model
 - infeasible solution
 - objective function
 - constraint
 - feasible solution
2. Develop linear programming models for simple problems.
3. Solve two variable linear programming models by the graphical solution procedure.
4. Use and interpretation of slack and surplus variables.
5. Interpret the computer solution of a linear programming problem.
6. Explain how alternative optimal solutions, infeasibility and unboundedness can occur in linear programming problems.
7. Understand the following terms:
 - feasible region
 - constraint function
 - slack variable
 - objective function
 - standard form
 - solution
 - redundant constraint
 - optimal solution
 - extreme point
 - nonnegativity constraints
 - surplus variable
 - alternative optimal solutions
 - infeasibility
 - linear functions
 - unbounded
 - feasible solution
8. Conduct graphical sensitivity analysis for two variable linear programming problems.
9. Compute and interpret the range of optimality for objective function coefficients.
10. Compute and interpret the dual price for a constraint.
11. Understand the following terms:
 - sensitivity analysis
 - range of optimality
 - dual price
 - reduced cost
 - range of feasibility
 - 100 percent rule
 - sunk cost
 - relevant cost
12. Find basic and basic feasible solutions to systems of linear equations when the number of variables is greater than the number of equations.
13. Use slack variables to set up tableau form to get started with the simplex method.
14. Use the simplex method for solving linear programming maximization problems.

Practice Exercises:

Chapter 2: 1, 7, 10, 14, 17, 22, 33, 40, 41, 44

Chapter 3: 5, 6, 11, 12, 18, 19

Chapter 5: 1, 4, 5, 6, 15