Chapter 3: Art of Optimization

# Examples of Special Situations in LP

## Corresponding reading: Chapter 3, Page 4

### Purpose: Understanding special situations in LP with examples.

1. Consider the transportation problem discussed in Chapter 3.
   * How can you make this problem infeasible? Write the whole formulation of the infeasible problem.
   * Use Excel to check that the revised problem is indeed infeasible.
   * What happens when you click the Solve button in Solver attempting to solve an infeasible problem? What message you get?
2. Consider the product mix problem discussed in Chapter 3.
   * How can you make this problem infeasible? Write the whole formulation of the infeasible problem.
   * Use Excel to check that the revised problem is indeed infeasible.
3. Consider the product mix problem discussed in Chapter 3.
   * How can you make this problem unbounded? Write the whole formulation of the unbounded problem.
   * Use Excel to check that the revised problem is indeed unbounded.
   * What happens when you click the Solve button in Solver attempting to solve an unbounded problem? What message you get?
4. Write an LP formulation that has multiple optimal solutions. Show that it has multiple optimal solutions and list three optimal solutions.

***Note:*** *Understanding the case and what you need to do is PART OF THE CASE. If you do not understand a specific part, or are not sure what you should do, you need to review the corresponding reading section in the text before asking for help. You might also need to do some search on the internet. That is all part of the case and your learning process.*