Chapter 3: Art of Optimization

# LP Example: Transportation Problem

## Corresponding reading: Chapter 3, Page 3

### Purpose: Formulating and Solving an LP for the Transportation problem in a real-world setting.

1. Search for the location of distribution centers (DCs) and stores of a retail store (e.g., Target, Walmart, and Staples) in a specific area (e.g., in a state).
2. Develop a transportation problem for distributing an arbitrary item from the DCs to the stores. You can use made-up numbers for the demand at each store and inventory availability at each DC.

Hint: You need to think about what objective function to choose. For example, should it be based on travel time or distance

1. Write the complete formulation.
2. Use Excel to solve the formulated problem. Remember to generate and Answer and Sensitivity reports.
3. Use the Sensitivity report to answer the following questions:
   * If they have some extra inventory, at which DC should they store them?
   * If they can manipulate the demand at stores through increasing the price, which store(s) should eb given priority for reducing demand?

***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.*