Homework 4
SA305, Spring 2012
Instructor: Phillips

Due: Wednesday, 2/15 5pm.

- Write up and hand in your formulations. **Clearly** indicate which problem your formulation corresponds to. **Be sure to use the NPS format and to adequately describe all variables, parameters, and constraints.** *You may email your formulations if you wish.*
- Email me a **single** spreadsheet for any formulations you are asked to find the solution too. Be sure to name your file with your lastname and the string "hw4". So my homework 4 file would be named:

  `phillips-hw4.xlsx`

1. Consider example 2.5 starting on p. 42. Consider a modification of this example where American Engine Co. produces several engines and has a longer time period over which they wish to plan their inventory. In particular, suppose you are given a set of engines types, denoted by $\mathcal{E}$, and a set of consecutive months, denoted by $\mathcal{T} = \{1, 2, \ldots, m\}$. Also, let X_{it} denote the number of type i engines produced during month t, and denote the demand for type i engines in month t by d_{it} where $i \in \mathcal{E}$ and $t \in \mathcal{T}$. Finally, let I_{it} denote the inventory of engine type i at the end of month t. Describe a family of inventory constraints, analogous to (2.5) on p. 45, that would model the inventory constraints.
2. Formulate and solve 2.20. Note that you need to have a written formulation – this may be electronic, but it is **not** sufficient to hand in an excel sheet with the data and a Solver model.