Homework 10
Due 4/26

1. Consider a gift wrapping station at a mall. In order to increase their wrapping efficiency, every gift uses the entire width of the wrapping paper roll, so the only thing that changes from package to package is the length of paper used. A number of packages has already been dropped off for people to wrap. There are 500 packages of length 24", 200 packages of length 18", and 300 packages that require a 20" length. (Assume the given length is the length of paper needed to wrap the package). Each roll of wrapping paper on hand is of length 70". Your wrappers decide to cut the roll of paper into one of two patterns. The first pattern contains one piece of each length. The other pattern contains 2 sheets of length 24" and one sheet of length 20". Using sensitivity analysis, identify whether or not you would benefit from cutting some of the rolls into a pattern containing two sheets of length 18" and one sheet of length 20". Also identify what pattern would give you the best reduced cost if one exists.

2. In the previous problem, what is the lower bound on the number of rolls required if you had treated it as a bin packing problem. What is the lower bound on the number of rolls required if you continue doing the steps from problem 1?

3. On the Resource loaded that is a practice exam from a different instructor labeled "Old Final", do problem 5.

4. On the same Resource, do problem 1.