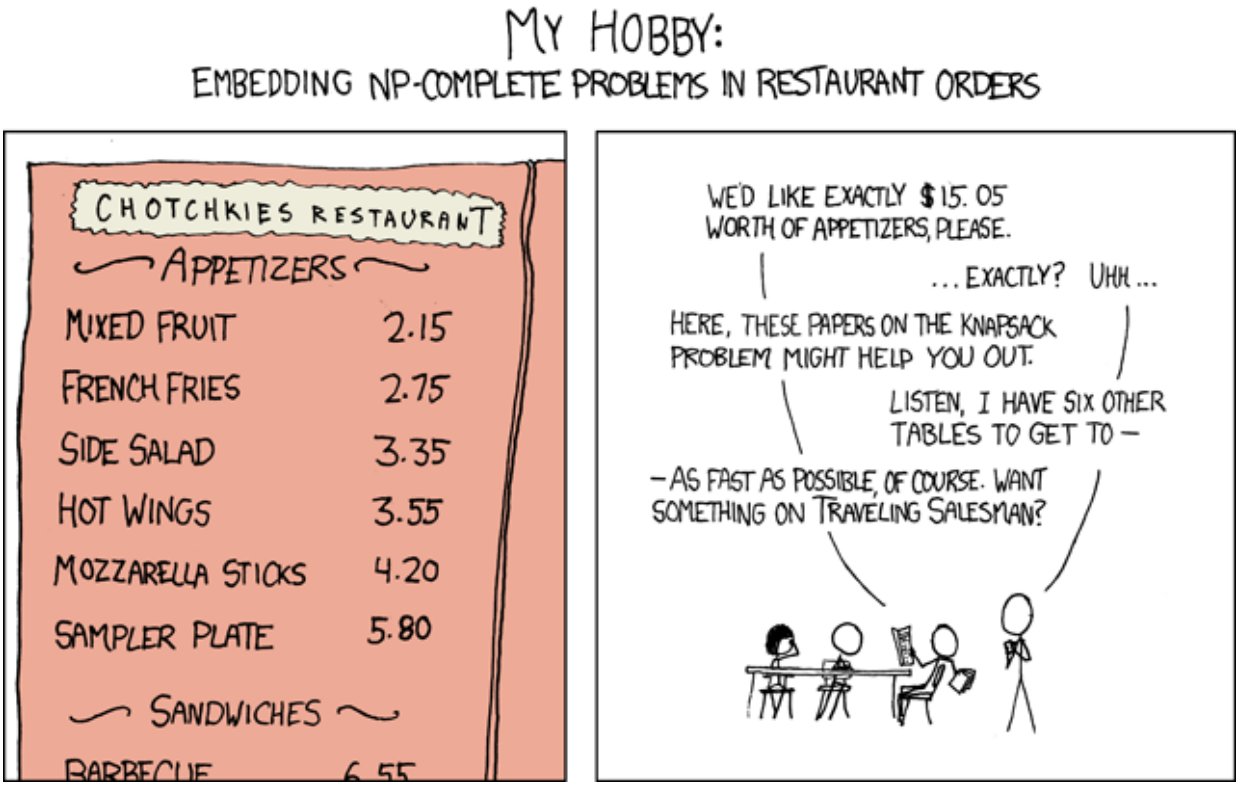
MATH3205/7202 Week 7



Inspired by this cartoon from xkcd.com, a restaurant opens with the aim of attracting Operations Research students and practitioners. They wish to construct a menu with items priced from $1.00 to $2.00, inclusive, in 5 cent increments, so that their mathematician customers can order any exact amount of food between $3.00 and $4.50, inclusive, in 5 cent increments.

The menu will contain at most one item at each price and the customers can order at most one of each item. The restaurant owners want to know what is the least number of items that can appear on the menu and what are the prices of these items.

Due to inflation, the range of menu item prices changes to be from $2.00 to $3.50 and the range of exact amounts to be covered changes to be from $5.00 to $8.00. Does your model still run in a reasonable time? What can you do to make it work?