Question 1

Question 7 on page 483 of Williamson

Question 2

Question 5 on page 137 of Williamson

Question 3

For this question, use Netscape to save the spreadsheet at the following address to your hard drive:

http://www.usna.edu/Users/econ/bcunning/ps3_436.xls

Also, in Excel, go to Tools | Add-Ins and make sure there is a check mark next to “Solver Add-In.”

In the spreadsheet, you will see two columns. The first contains variable labels while the second contains variable numerical values. The variables are U (utility), C (consumption), l (leisure), pi – T (dividends minus taxes), w (wages), h (hours in the day), and s (savings).

There are initial numerical values for some of these variables.

a) Assume the utility function is $U = C^{0.5} \times l^{0.5}$. Enter this formula into the spreadsheet (cell B3). What is the initial numerical value of utility?

b) Use the budget constraint from class discussions to enter a formula which gives you the initial numerical value of savings in cell B9. What is this value?

Now, you will use solver to find the numerical value of consumption and leisure which maximizes utility. Go to Tools | Solver in Excel. Your target cell should contain the numerical value of utility. You want to maximize this by changing the cells containing the numerical values of consumption and leisure.

Your constraints should set the cell with the numerical value of savings equal to zero (to set up constraints, click “Add”).

c) Solve for the utility-maximizing level of consumption and leisure when the wage is 5. What are these values?

d) Set the numerical values of C and l back to their initial values of 1. Also, increase the wage to 8. What happens to the utility-maximizing level of consumption and leisure? Is labor supply upward or downward sloping in this problem?