Homework Assignment 9. Due: Thursday, April 14.

1. (3 points) Ashley divides her working time between home production and market production. The Value of marginal Product (=productivity in dollar terms) of market production is given by VMP\textsubscript{mkt} = 50 – 2H\textsubscript{mkt}, where H\textsubscript{mkt} is the number of hours spend on market production, and the Value of Marginal Product of home production is given by VMP\textsubscript{home} = 45 – 3H\textsubscript{home}, where H\textsubscript{home} is the number of hours spend on home production. What is the optimal division of her time between two types of production if there are a total of 40 hours to be worked between work and home? Suppose that government taxes Ashley market income by 10%. What is the new optimal division of time? What is the excess burden resulting from this tax?

2. (7 points) Jim is maximizing his utility by consuming two goods – color markers and all other goods. The price of one color marker is P\textsubscript{CM}=$0.5, the price of all other goods P\textsubscript{OG}=$1. Jim’s income is I=$50, his utility is given by U=(CM)^{0.5}(OG)^{0.5}. (The respective optimal consumption levels are given by (CM)^*=0.5*(I/P\textsubscript{CM}), (OG)^*=0.5*(I/P\textsubscript{OG}). Now assume that government imposes a $.50 tax on color markers. (The color markers are produced competitively so that market supply is perfectly elastic – a tax is born completely by consumers.)
   a. What is Jim’s optimal consumption of color markers and all other goods before tax?
   b. What is Jim’s optimal consumption of color markers and all other goods after tax?
   c. What are the tax revenues?
   d. Compute the Equivalent Variation of this tax?
   e. Compute the Compensating Variation o this tax?
   f. Compare your answers to (c), (d), and (e).