

ECO 610  
Fall 2016  
Problem Set #2

1. Your cousin, who works for the Kentucky DMV, asks you for advice about how to price personalized (vanity) license plates. After doing some research, you find that the number of vanity plates sold annually in Kentucky dropped from 95,000 to 45,000 when the price was increased from \$25 to \$40.
  - a. Calculate the elasticity of demand for personalized license plates in Kentucky. Show your work.
  - b. The state prison system has estimated that personalizing a license plate adds an extra \$7 to the cost of stamping out a license plate by inmates in Kentucky prisons [<https://www.youtube.com/watch?v=okIKAMEOT7I>]. Based on that information, do you think that increasing price was a good idea if the legislature wants to maximize net revenue (profit) from this program.
  
2. As manager of a local convenience store, you decide to try a marketing experiment. You raise the price of Pepsi from \$4.99 per twelve-pack to \$5.49 per twelve-pack, while holding the price of Coke constant. You find that Coke sales increase by about 50 percent. Calculate the cross-price elasticity of demand between Pepsi and Coke. Show your work.
  
3. Recently the state of New Mexico raised the tax on beer, leading to a ten-percent increase in the price of beer. Beer sales fell by around five percent statewide. In the adjoining state of Texas, the managers of Lone Star Brewing Company observed the experience of the state of New Mexico and decided to raise the price of their premium Pearl beer by five percent. They experienced a ten percent drop in quantity sold. Perplexed, they turn to you for an explanation for this seeming anomaly.