Homework 1

Key concepts from Chapters 1 and 2 covered thus far:

- Opportunity Cost
- Comparative Advantage
- Exogenous variables, endogenous variables
- Know what factors will shift demand curves, what will shift supply curves

- Go through the Supply and Demand Fallacies handout and make sure you can explain what is wrong with each of the statements and can write a corrected statement.

- Check out the handout on graphing equations. Be sure you can graph basic equations and find equilibrium prices and quantities.

From Chapter 2

1. True/False/Explain: A farmer with a lot of children will find it less costly to harvest his crops than a farmer with no children since he can put his children to work without pay.

2. T/F/Explain: Plantations in the Southern United States had higher costs after the Civil War because they had to pay their field workers, rather than use the free labor of slaves. Is this the same problem as #1?

From Chapter 1

3. True/False/Explain: If a law were passed requiring all cars sold in the US to get at least 40 miles per gallon, then over time Americans would surely use less gasoline. Hint: think about a demand curve for mileage and the price per mile.
4 Oranges are sold in two markets: the fresh market (i.e., fresh oranges that households purchase) and the juice market (oranges purchased by food processing companies products such as orange juice). Only almost perfect oranges are sold in the fresh market but oranges with some imperfections can be sold in the juice market. Suppose that a mild frost in Florida does not affect the overall size of the Florida orange crop but creates a larger than usual number imperfect oranges. Discuss the implications for the price of fresh oranges and the price of orange juice. What is also likely to happen to the price of grapefruit juice? (Assume that the supply of grapefruit is unaffected by the Florida frost.) Use diagrams to illustrate your answer.

5 Suppose that the following supply and demand functions represent the Bozeman market for internet access by households.

\[ Q_D = 400 - 5P + 1.5Y \]
\[ Q_S = 200 - 5P - 2W \]

where \( Q_D \) and \( Q_S \) are quantity of internet service demanded and quantity supplied, \( P \) is the market price of the internet service, \( Y \) is average household monthly income, and \( W \) is the hourly wage rate paid to workers who install and maintain the internet service.

(a) Which variables are exogenous and which endogenous in this model?

(b) Which variables shift the demand curve and which shift the supply curve?
(c) If the wage rate (W) is $50 an hour and average monthly household income (Y) is $3,000, what is the market equilibrium price and the market equilibrium traded quantity? Graph demand and supply in this case.

(d) How do the equilibrium values for price and traded quantity change if the wage rate paid to internet installers increases to $100 an hour? Show this in your diagram.
(e) How do the equilibrium values for price and traded quantity change if then household incomes increased to $4,000 a month? Show this in your diagram.