Problem Set 1

Jamal has a flexible summer job. He can work every day but is allowed to take a day off anytime he wants. His friend Don suggests they go to the amusement park on Tuesday. The admission charge for the park is $15 per person, and it will cost them $5 each for gasoline and parking. Jamal loves amusement parks and a day at the park is worth $45 to him. However, Jamal also enjoys his job so much that he would actually be willing to pay $10 per day to do it.

a. If Jamal earns $10 if he works, should he go to the amusement park?

b. If Jamal earns $15 . . . ?

c. If Jamal earns $20 . . . ?

The meal plan at University A lets students eat as much as they like for a fixed fee of $500 per semester. The average student there eats 250 lbs. of food per semester. University B charges students $500 for a book of meal tickets that entitles the student to eat 250 lbs. of food per semester. If the student eats more than 250 lbs., he or she pays extra; if the student eats less, he or she gets a refund. If students are rational, at which university will average food consumption be higher?

Suppose that random access memory (RAM) can be added to your computer at a cost of $8 per gigabyte. Suppose also that the value to you, measured in terms of your willingness to pay, of an additional gigabyte of memory is $32 for the first gigabyte, and then falls by one-half for each additional gigabyte. Draw a graph of marginal cost and marginal benefit. How many gigabytes of memory should you purchase?

Practice Question in Python Tutorial 1

Non-linear demand and supply

$$p = i_d(q) := d_0 - d_1 q^{0.6}$$

$$p = i_s(q) := s_0 + s_1 q^{1.8}$$

Paste your code, plot the supply and demand model, and find the equilibrium quantity and price.