**Chapter 21**

1. Suppose a consumer only buys two goods: hot dogs and hamburgers. Suppose the price of hot dogs is €1, the price of hamburgers is €2, and the consumer's income is €20.

a. Plot the consumer's budget constraint in Exhibit 1. Measure the quantity of hot dogs on the vertical axis and the quantity of hamburgers on the horizontal axis. Explicitly plot the points on the budget constraint associated with the even numbered quantities of hamburgers (0, 2, 4, 6 . . .).

Exhibit 1
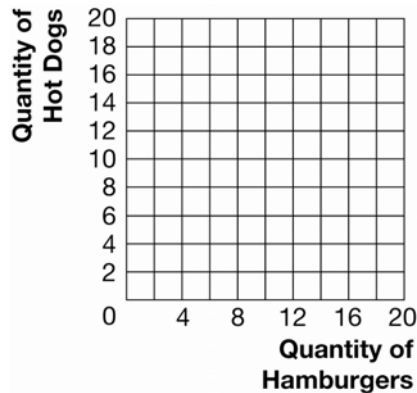
b. Suppose the individual chooses to consume six hamburgers. What is the maximum amount of hot dogs that he can afford? Draw an indifference curve on the figure above that establishes this bundle of goods as the optimum.

c. What is the slope of the budget constraint? What is the slope of the consumer's indifference curve at the optimum? What is the relationship between the slope of the budget constraint and the slope of the indifference curve at the optimum? What is the economic interpretation of this relationship?

d. Explain why any other point on the budget constraint must be inferior to the optimum.

2.   Use Exhibit 2 to answer the following questions.

Exhibit 2
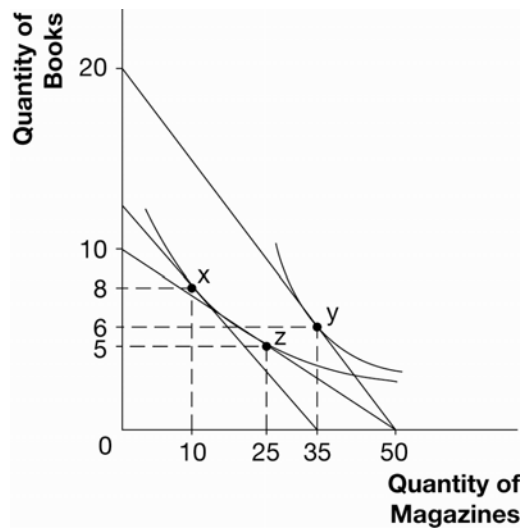
a.   Suppose the price of a magazine is €2, the price of a book is €10, and the consumer's income is €100. Which point on the graph represents the consumer's optimum: X, Y, or Z? What are the optimal quantities of books and magazines this individual chooses to consume?

b.   Suppose the price of books falls to €5. What are the two optimum points on the graph that represent the substitution effect (in sequence)? What is the change in the consumption of books due to the substitution effect?

c.   Again, suppose the price of books falls to €5. What are the two optimum points on the graph that represent the income effect (in sequence)? What is the change in the consumption of books due to the income effect? Is a book a normal good or an inferior good for this consumer? Explain.

d.   For this consumer, what is the total change in the quantity of books purchased when the price of books fell from €10 to €5?

e.   Use the information in this problem to plot the consumer's demand curve for books in Exhibit 3.

Exhibit 3