Exercises Questions

1. The El Nino in 2015/16 made last winter in Guangdong Province colder than before, which makes watermelons not as sweet as before. Explain what happens to consumer surplus in the market for watermelons. Explain what happens to consumer surplus in the market for watermelon juice. Illustrate your answers with diagrams.

2. A recent study found that the demand and supply schedules for Frisbees are as follows:

Price per Frisbee	Quantity Demanded	Quantity Supplied
$11	1 million Frisbees	15 million Frisbees
10	2	12
9	4	9
8	6	6
7	8	3
6	10	1

a. What are the equilibrium price and quantity of Frisbees?
b. Frisbee manufacturers persuade the government that Frisbee production improves scientists' understanding of aerodynamics and thus is important for national security. A concerned Congress votes to impose a price floor $2 above the equilibrium price. What is the new market price? How many Frisbees are sold?
c. Irate college students march on Washington and demand a reduction in the price of Frisbees. An even more concerned Congress votes to repeal the price floor and impose a price ceiling $1 below the former price floor. What is the new market price? How many Frisbees are sold?

3. The cost of producing flat-screen TVs has fallen over the past decade. Let's consider some implications of this fact.
a. Draw a supply-and-demand diagram to show the effect of falling production costs on the price and quantity of flat-screen TVs sold.
b. In your diagram, show what happens to consumer surplus and producer surplus.
c. Suppose the supply of flat-screen TVs is very elastic. Who benefits most from falling production costs—consumers or producers of these TVs?

4. Kawmin is a small country that produces and consumes jelly beans. The world price of jelly beans is $1 per bag, and Kawmin's domestic demand and supply for jelly beans are governed by the following equations:

Demand: $Q^D = 8 - P$,

Supply: $Q^S = P$,

where P is in dollars per bag and Q is in bags of jelly beans.

a. Draw a well-labeled graph of the situation in Kawmin if the nation does not allow trade. Calculate the following (recalling that the area of a triangle is ½ 3 base 3 height): the equilibrium price and quantity, consumer surplus, producer surplus, and total surplus.

b. Kawmin then opens the market to trade. Draw another graph to describe the new situation in the jelly bean market. Calculate the equilibrium price, quantities of consumption and production, imports, consumer surplus, producer surplus, and total surplus.

c. After a while, the Czar of Kawmin responds to the pleas of jelly bean producers by placing a $1 per bag tariff on jelly bean imports. On a graph, show the effects of this tariff. Calculate the equilibrium price, quantities of consumption and production, imports, consumer surplus, producer surplus, where P is in dollars per bag and Q is in bags of jelly beans. government revenue, and total surplus.

d. What are the gains from opening up trade? What are the deadweight losses from restricting trade with the tariff? Give numerical answers.

5. Suppose a technological advance reduces the cost of making computers.

a. Use a supply-and-demand diagram to show what happens to price, quantity, consumer surplus, and producer surplus in the market for computers.

b. Computers and adding machines are **substitutes**. Use a supply-and-demand diagram to show what happens to price, quantity, consumer surplus, and producer surplus in the market for adding machines. Should adding machine producers be happy or sad about the technological advance in computers? (You need to find out the definition of substitute on your own)

c. Computers and software are **complements**. Use a supply-and-demand diagram to show what happens to price, quantity, consumer surplus, and producer surplus in the market for software. Should software producers be happy or sad about the technological advance in computers? (You need to find out the definition of complement on your own)

d. Does this analysis help explain why Bill Gates, a software producer, is one of the world's richest men?

6. Market supply in a competitive industry is p = Q. Demand is p = 100 − Q. Production creates pollution with a social cost of $1 per unit of output. In response to environmentalists, the government creates a tax of $2 per unit. Is overall welfare improved or reduced by the tax?

7. Many parts of California experienced a severe drought in the late 1980s and early 1990s.

   a. Use a diagram of the water market to show the effects of the drought on the equilibrium price and quantity of water.

   b. Many communities did not allow the price of water to change, however. What is the effect of this policy on the water market? Show on your diagram any surplus or shortage that arises.

   c. A 1991 op-ed piece in The Wall Street Journal stated that "all Los Angeles residents are required to cut their water usage by 10 percent as of March 1 and another 5 percent starting May 1, based on their 1986 consumption levels." The author criticized this policy on both efficiency and equity grounds, saying "not only does such a policy reward families who 'wasted' more water back in 1986, it does little to encourage consumers who could make more drastic reductions, [and] . . . punishes consumers who cannot so readily reduce their water use." In what way is the Los Angeles system for allocating water inefficient? In what way does the system seem unfair?

   d. Suppose instead that Los Angeles allowed the price of water to increase until the quantity demanded equaled the quantity supplied. Would the resulting allocation of water be more efficient? In your view, would it be more or less fair than the proportionate reductions in water use mentioned in the newspaper article? What could be done to make the market solution more fair?