1. Suppose that the U.S. produces just two outputs, cars and higher education. Because workers within the country vary in their relative abilities in producing the two outputs, the opportunity cost of producing each of them rises as more of it is produced.
   a. Draw the PPC for the U.S. (with cars on the horizontal axis) under the assumption of rising opportunity cost. If the world price of a car is $20,000 and the world price of a unit of higher education (for example, one course) is $10,000, what are the terms of trade in world markets between cars and higher education? Show how much higher education and cars the U.S. will want to produce. (You will not be able to show actual numbers; just show qualitatively where along the PPC the U.S. will want to produce.)
   b. What is the consumption possibilities curve with trade for the U.S. in this case? What determines its slope and position? What is the total value of every combination of cars and higher education along the CPC?
   c. Assuming that the U.S. is a net importer of cars, illustrate the number of cars that the U.S. wants to produce and consume using a supply and demand diagram for cars that includes the world price of cars.
   d. Suppose that because of the opening of new factories in Korea and Mexico, the world price of a car falls to $10,000, while the world price of higher education remains at $10,000. How will this development change the quantity of cars the U.S. produces? Illustrate your answer using both the PPC/relative price line diagram and the supply and demand diagram with trade.

2. Describe how each of the following developments would affect the amount produced by a monopolist in the short run:
   a. The price of an input rises.
   b. The demand curve becomes more elastic. Specifically, the demand curve pivots so that it is flatter but the quantity demanded at the price the monopolist was previously charging is the same as before.

3. Tablet PCs are an example of a good that we both produce ourselves and import. This means that with free trade, the world price of tablets must be below the level that would equilibrate U.S. supply and U.S. demand, but high enough that some American producers want to produce. Tablets are also a good that might have a positive externality associated with their production. Suppose that we get external benefits, such as knowledge spillovers to other American industries, when we produce tablets in the United States.
   a. Show the areas of consumer surplus, producer surplus, and the external benefits for the United States when international trade in tablets is unrestricted. (Note: The U.S. only gets external benefits from the tablets that we produce domestically, not from those that we import.)
b. Suppose that the U.S. imposes a tariff on foreign tablets that reduces, but does not completely eliminate, imports. Show the areas of consumer surplus, producer surplus, the external benefits, and government tariff revenue for the United States when there is a tariff in place.

c. Judging from your analysis in parts a and b, what factors determine whether American total social welfare is increased or decreased by protecting goods that have a positive externality associated with their production?

4. There are many policies that, instead of taxing activities or products that have negative externalities associated with them, subsidize substitutes that have smaller negative externalities associated with them. This problem asks you to think about this issue in the context of electric cars and carbon emissions. Assume that the carbon emissions involved in producing and powering an electric car are positive but less than those involved in producing and powering a gasoline-powered car, and that neither type of car has any externalities associated with it other than carbon emissions.

a. Suppose there are neither taxes nor subsidies on either type of car. Consider the market for electric cars and the market for gasoline-powered cars. Show the deadweight loss in each market.

b. Now suppose the government introduces a subsidy on electric cars. Assume that it is physically paid to the sellers. If electric cars and gasoline-powered cars are substitutes, how will this affect the price and quantity in each market?

c. Explain how the subsidy to electric cars might actually increase total carbon emissions.

5. For each of the following decide whether the statement is true, false, or uncertain and explain why. Your explanation is the important part of the answer.

a. Monopoly leads not only to production occurring at less than the level where MB = MC, but also to misallocation of the good among consumers.

b. Both moral hazard and adverse selection act to make the equilibrium quantity of health insurance less than the allocatively efficient amount.