1. Jane has just arrived at the airport after a nine-hour flight. The cab ride to her hotel takes 10 minutes, while the airport shuttle (because of numerous stops) takes one hour. Cab fare is $30, while a ticket for the shuttle costs $5. Jane’s best alternative use of her time is sleeping at the hotel, which she values at $36 over the next hour.

   a) If Jane is rational, how will she get to the hotel if there is no wait for either the cab or the shuttle.

   b) Suppose the shuttle is ready immediately, but the line at the taxi stand implies a 10 minute wait. What is Jane’s rational choice?

   a) cost of cab = $36; cost of shuttle = $41; if Jane is rational, she will take the cab.
   b) cost of cab = $42; she should take the shuttle.

2. “Reducing the speed-limit by 10 miles per hour will save 1000 lives per year on our nation’s roads.” Supposing this statement is true, does it provide adequate justification to support reducing the speed limit? Why or why not?

   No, because this argument does not account for the potential costs of reducing the speed limit. (What would some of these costs be?)

3. To join the local health club, you must pay a one-time (non-refundable) initiation fee, in addition to dues payable each month the health club facilities are used. Using marginal cost-benefit analysis, provide a possible explanation for the club’s pricing policy.

   The initiation fee is a sunk cost with respect to the decision to remain in the club on a month-to-month basis. However, by charging such a fee upfront, the club can presumably reduce the monthly dues, which will affect members’ marginal costs and benefits. In particular, when a current member weighs the costs and benefits on the margin (i.e. of staying in the club one more month), the marginal costs will be lower – and thus the member will be more likely to stay – than if no initiation fee were charged.

4. The City of Chicago owns a broken down pier next to a downtown park. A local politician has proposed converting the pier into a beautifully landscaped walk-way that will permit park users to view Lake Michigan. The politician proposes paying for the project by raising the hotel tax by one-quarter of one percent. He argues that Chicagoans should support the project because it is free to them since visitors will pay for it.

   a) Is the politician correct in claiming the project is free for the citizens of Chicago? If not, what are the opportunity costs?
Even though the citizens might not directly pay for the project, the opportunity cost of the walk-way is the value of the best alternative use of the resources. Perhaps more value would be created by building a hospital with the tax proceeds, than the walkway.

b) Suppose the city can pay for the renovation from taxes collected but unspent from past years, so that no new taxes need to be raised. Will this fact change your answer to part (a)?

No. The accumulated taxes could be used for something else; thus, there would still be an opportunity cost.

c) Suppose the City Council decides to build the walk-way. How should marginal analysis be used to decide how much money to spend on it?

They should spend funds on the walk-way until the marginal benefit of the next dollar spent on the project equals the marginal cost of the next dollar spent. We might imagine that the spending extra dollars on the project improves its quality, but that the improvement in quality is diminishing as more dollars are spent.

5. How might the free distribution of condoms increase the incidence of sexually transmitted diseases?

Condoms reduce the cost of sexual activity; therefore, we would predict that free condoms would lead to an increase in sexual activity. While condoms reduce the probability of disease for each sexual encounter, the total incidence of disease could rise if the sexual activity rises a lot.

6. Firms in the US and Europe can produce only two goods, cars and wheat. For given resources and technological know how, firms in the US can produce 1000 tons of wheat if no cars are produced, 500 cars if no wheat is produced, and any linear combination in between. Likewise, firms in Europe can produce 400 tons of wheat or 800 cars under the same conditions.

a) Draw the production possibilities frontiers for US firms and European firms. Carefully label your graph.

b) In which economy do firms have a comparative advantage in the production of cars? In the production of wheat? Explain.

c) If cars and wheat can be traded internationally at a price of one car for each ton of wheat, explain the economic incentives firms have in each country to specialize.

d) Draw the “world-wide” production possibilities frontier. Explain the sense in which marginal costs are “increasing” along the frontier.
b) To produce a car, US firms give up 2 units of wheat given resources and technology. European firms give up only ½ a unit of wheat. Therefore, Europe has a comparative advantage in car production. The tradeoffs are inverted for wheat, so US firms have a comparative advantage in the production of wheat. (Coincidently, but irrelevantly, US has absolute advantage in wheat while Europe has an absolute advantage in cars.)

c) Consider a firm in the US. To produce a car requires giving up 2 units of wheat. But to buy a car costs 1 unit of wheat at the given price. US firms will therefore have an incentive to specialize in the production of wheat. Likewise, European firms can produce wheat at a cost of 2 cars, but can trade for wheat at a price of 1 car. Therefore, these firms will specialize in producing cars.

d) Figure below. Suppose the world produces wheat only; then the maximum amount of wheat produced is 1400 tons. It is productively efficient to allow Europe to produce cars first, since European firms have a comparative advantage in producing cars. Once Europe specializes in cars, the US will start giving up wheat to produce cars. However, we know that the US produces car at a higher relative cost than Europe. Therefore, as more cars are produced, in general, the marginal costs of producing cars will rise as we move along the world-wide frontier.
7. Consider the following information about the market supply and demand for concert tickets:

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<th>PRICE ($)</th>
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<th>SUPPLY</th>
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<tr>
<td>25</td>
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a) Draw a graph representing the supply and demand curves.
b) What is the equilibrium price of tickets for this concert?
c) If the face value of tickets is set at $10 per ticket, will there be an excess demand or supply of tickets? If the face value of tickets is set at $30, will there be an excess demand or supply for tickets? In which of these cases will there likely be an opportunity for ticket scalping (i.e. reselling the tickets for a price higher than face value)? Explain.
d) Suppose that the demand curve for tickets above reflects consumers’ willingness to pay if tickets can be purchased without waiting in line. If the opportunity cost of waiting in line is $10 an hour, what is the new demand curve and equilibrium price for tickets if it takes an hour to purchase tickets?
b) **Equilibrium price is $20.**

c) **If the face value is $10, then there will be an excess demand for tickets. If the face value is $30, there will be an excess supply of tickets. If tickets are sold at a price below equilibrium, there will be likely be an opportunity for resale. At a $10 face value, 400 tickets will be sold at the box office, but there will clearly be some potential buyers willing to pay more than $10 for a ticket. If there are some initial buyers who value tickets at less than what others are willing to pay, then a mutually beneficial trade can take place after the initial sale and for a price higher than $10.**

It’s worthwhile thinking about why scalping won’t be possible if tickets are initially sold at the equilibrium price. Consider the marginal buyer, the person who is just willing to pay $20 for a ticket. The only other people who will purchase a ticket at $20 are those willing to pay more than the marginal buyer (i.e. more than $20). People without a ticket value a ticket at less than $20, so the marginal buyer will find no takers for a profitable (to the marginal buyer) resale.

d) **The demand curve will shift down by $10 (to buy 400 tickets, buyers are willing to pay $20; if it costs $10 to wait for tickets, then they would want to buy the same number of tickets only if the price were $10 instead of $20). The new equilibrium price will be $10.**
8. Ethanol is a fuel made from corn, and is a substitute for fuels, like gasoline, that are made from oil. As the price of oil rises, what do you predict will happen to the price of corn, and the price and quantity sold of foods made from corn?

As the price of oil rises, the demand for corn would rise as it becomes more valuable as a means for producing fuel. Therefore, the price of corn will rise. As the price of corn rises, the supply of food made from corn (e.g. cornbread?) will fall, raising the price of this food and reducing the quantity produced and sold in equilibrium.