1. Suppose that in the last few seconds you devote to question 1 on your physics test you earned 4 extra points, while in the last few seconds you devote to question 2 you earned 10 extra points. You earned a total of 48 and 12 points, respectively, on the two questions and the time you spent on each was the same. If you could take the exam again, how—if at all—should you reallocate your time between these questions?

   Even though you earned four times as many points from the first question than from the second, the last minute you spent on question 2 added 6 more points to your total score than the last minute you spent on question 1. That means you should have spent more time on question 2.

2. Ted can wax a car in 20 minutes or wash a car in 60 minutes. Tom can wax a car in 15 minutes or wash a car in 30 minutes. What is each man’s opportunity cost of washing a car? Who has the comparative advantage in washing cars?

   **Assume 1 hour:**

<table>
<thead>
<tr>
<th></th>
<th>Wash</th>
<th>Wax</th>
<th>Opp. Cost of Wash</th>
<th>Opp. Cost of Wax</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ted</td>
<td>1</td>
<td>3</td>
<td>3 wax</td>
<td>½ wash</td>
</tr>
<tr>
<td>Tom</td>
<td>2</td>
<td>4</td>
<td>2 wax</td>
<td>½ wash</td>
</tr>
</tbody>
</table>

   In the time it takes Ted to wash a car he can wax 3 cars. So his opportunity cost of washing one car is 3 wax jobs. In the time it takes Tom to wash a car, he can wax 2 cars. So his opportunity cost of washing one car is 2 wax jobs. Because Tom’s opportunity cost of washing a car is lower than Ted’s, Tom has a comparative advantage in washing cars.

3. Toby can produce 5 gallons of apple cider or 2.5 ounces of feta cheese per hour. Kyle can produce 3 gallons of apple cider or 1.5 ounces of feta cheese per hour. Can Toby and Kyle benefit from specialization and trade? Explain.

   **Assume a 2 hour work day:**

<table>
<thead>
<tr>
<th></th>
<th>Cider</th>
<th>Cheese</th>
<th>Opp. Cost of Cider</th>
<th>Opp. Cost of Cheese</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toby</td>
<td>10</td>
<td>5</td>
<td>½ cheese</td>
<td>2 cider</td>
</tr>
<tr>
<td>Kyle</td>
<td>6</td>
<td>3</td>
<td>½ cheese</td>
<td>2 cider</td>
</tr>
</tbody>
</table>
Kyle and Toby each must give up 2 gallons of cider in order to produce 1 pound of cheese, or one-half pound of cheese to produce one gallon of cider. Thus, since they face the same opportunity cost of producing one pound of cheese, they cannot gain from specialization and trade.

4. How would each of the following affect the U.S. market supply curve for corn?

a. A new and improved crop rotation technique is discovered.
b. The price of fertilizer falls.
c. The government offers new tax breaks to farmers.
d. A tornado sweeps through Iowa.

The supply curve would shift:

a. To the right. The discovery is a technological improvement, so the improved technique would allow a farmer to use the same inputs to produce more corn.
b. To the right. Fertilizer is an input, so this is an example of a decrease in an input price. A decrease in input prices shifts the supply curve to the right.
c. To the right. The new tax breaks make farming relatively more profitable than before, so those who were earning an income from a non-farming job that paid just a little bit more than farming would switch to farming if the tax break is big enough.
d. To the left. A tornado would destroy corn fields, along with infrastructure used to harvest and store it. Thus, at every given price the quantity of corn supplied would be lower and the supply curve shifts to the left.

5. Indicate how you think each of the following would shift the demand in the indicated market:

a. Incomes of buyers in the market for Charleston vacations increase.
b. Buyers in the market for pizza read a study linking hamburger consumption to heart disease.
c. Buyers in the market for CDs learn of an increase in the price of songs on iTunes.
d. Buyers in the market for iTunes learn of an increase in the price of iTunes songs.

c. The demand curve would:

e. Shift to the right. Buyers’ income has risen and vacations are a normal good, so this increase the quantity demanded at every given price.
f. Shift to the right. Buyers’ preferences will probably change because most people want to avoid foods that cause heart disease. Thus, buyers will purchase fewer hamburgers and more pizza.
g. Shift to the right. When the price of a substitute rises, the demand for a good increases i.e. shifts to the right.
h. Not be affected. An increase in the price of iTunes songs decreases the quantity demanded of iTunes songs i.e. causes a movement along the demand curve.