For Problems 1-3, please show the shift or shifts in supply and demand in the graphs to the right below. LABEL ALL CURVES. Indicate in the blank spaces provided below what will happen to supply, demand, price and quantity. (8 points each).

1. Milk is a normal good. In the last few years the level of income has risen, on average, throughout much of the world. Show the effect on the market for milk.

<table>
<thead>
<tr>
<th>Supply</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>↑</td>
<td>↑</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Demand</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>↓</td>
<td>↓</td>
</tr>
</tbody>
</table>

2. Farmers can raise either corn or soybeans on their land. Show the effect of the recent increase in the price of corn on the market for soybeans.

<table>
<thead>
<tr>
<th>Supply</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>↓</td>
<td>↑</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Demand</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>↓</td>
<td>↓</td>
</tr>
</tbody>
</table>

3. Recently the value of the U.S. dollar against foreign currencies has fallen. (We will be discussing why later in the course.) This is making European vacations more expensive. Show the effect on the market for American resorts.

<table>
<thead>
<tr>
<th>Supply</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>↓</td>
<td>↑</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Demand</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>↑</td>
<td>↑</td>
</tr>
</tbody>
</table>

People will vacation in U.S.
4. (14 points)

The demand for cat food is given in the chart to the right.

a) Calculate the elasticity (responsiveness) of demand for cat food.

\[
\text{Elasticity} = \frac{\frac{\Delta Q}{Q_{old}}}{\frac{\Delta P}{P_{old}}} = \frac{\frac{200}{200}}{\frac{2}{2}} = 1
\]

b) Is the demand elastic (responsive)? How can you tell?

No, elasticity \( < 1 \).

c) Cite 2 factors that make the demand for a product elastic.

- A small share of income
- A luxury good

Choose 1 of the 2 factors you cited in part (c). Is it consistent with what you found in terms of elasticity in part (b)? Explain.

Yes, as a luxury, it is more responsive.

e) Suppose we find that over time

\[
\begin{array}{c|c|c}
\text{Price Cat food} & \text{Quantity Cat food} & \text{Income} \\
\hline
$3 & 100 & 1000 \\
$3 & 105 & 1100 \\
\end{array}
\]

Calculate the income elasticity.

\[
\text{Elasticity}_{inc} = \frac{\frac{\Delta Q}{Q_{old}}}{\frac{\Delta \text{Income}}{\text{Income}_{old}}} = \frac{5}{100} = 0.05
\]

f) Is cat food a normal good? How can you tell?

Yes, \( \Sigma inc \cdot \text{Elasticity} \geq 0 \).
5. (10 points) Refer to the table below for questions a-e.

<table>
<thead>
<tr>
<th>Amount produced in 1 year.</th>
<th>Cars</th>
<th>Airplanes</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S.</td>
<td>60</td>
<td>15</td>
</tr>
<tr>
<td>Japan</td>
<td>48</td>
<td>16</td>
</tr>
</tbody>
</table>

a) The opportunity cost of 1 car for Japan is
\[
\text{Give up Car} \over \text{Give up Car} = \frac{16}{48} = \frac{1}{3} = .33
\]

b) The opportunity cost of 1 car for the U.S. is
\[
\text{Give up Car} \over \text{Give up Car} = \frac{15}{60} = \frac{1}{4} = .25
\]

c) The U.S. has an absolute advantage in \textbf{Cars} and Japan has an absolute advantage in \textbf{Airplanes}.

\[
\text{U.S. produces most cars per worker.}
\]

\[
\text{Japan produces most airplanes.}
\]

d) The U.S. has a comparative advantage in \textbf{Cars} and Japan has a comparative advantage in \textbf{Airplanes}.

\[
\text{U.S. lowest up cost cars.}
\]

\[
\text{Japan lowest up cost airplanes.}
\]

e) The U.S. and Japan could benefit by the U.S. specializing in \textbf{Cars} and Japan specializing in \textbf{Airplanes}.

\[
\text{Each produces what has lowest cost.}
\]
6. (7 points)

The supply and demand for a textbook is given below

<table>
<thead>
<tr>
<th>Demand</th>
<th></th>
<th>Supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price</td>
<td>Quantity</td>
<td>Price</td>
</tr>
<tr>
<td>50</td>
<td>40</td>
<td>50</td>
</tr>
<tr>
<td>45</td>
<td>42</td>
<td>45</td>
</tr>
<tr>
<td>40</td>
<td>44</td>
<td>40</td>
</tr>
<tr>
<td>35</td>
<td>46</td>
<td>35</td>
</tr>
<tr>
<td>30</td>
<td>48</td>
<td></td>
</tr>
</tbody>
</table>

a) In the absence of any price ceiling or price floor, what will the equilibrium price and quantity be in this market?

\[ P = 35 \quad Q_e = Q_d = 46 \]

b) Suppose a price ceiling of $30.00 is imposed. How many books will be bought?

40 people want to buy 46 but only 40 will be offered.

c) State one of the things that might happen with the imposition of the price ceiling. (Answer should be based on text or lecture.)

- Black market
- Shortage

(Answer should be based on text or lecture.)

(2)

d) What will be the effect of a $30.00 price floor on the answers you calculated in part a?

Nothing. Price floor below cost.
7. (6 points) Use the following table for questions a–c. 
This table refers to five possible buyers' willingness to pay for Good Z.

<table>
<thead>
<tr>
<th>Buyer</th>
<th>Willingness to Pay</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cassie</td>
<td>$8.50</td>
</tr>
<tr>
<td>Jamie</td>
<td>$7.00</td>
</tr>
<tr>
<td>John</td>
<td>$5.50</td>
</tr>
<tr>
<td>Jeremy</td>
<td>$4.00</td>
</tr>
<tr>
<td>Sarah</td>
<td>$3.50</td>
</tr>
</tbody>
</table>

a) If the market price is $5.50, the consumer surplus in the market will be:

\[ \text{Consumer surplus} = (\text{Sarah} - \text{Market Price}) + (\text{Jeremy} - \text{Market Price}) + (\text{Cassie} - \text{Market Price}) \]

b) If the price of good Z is $6.90, who will purchase the good?
   a. John and Sarah
   b. John, Jeremy and Sarah
   c. Cassie, Jamie and John
   d. Cassie and Jamie

c) Sketch the demand for good Z in the graph to the right. Carefully number and label the axes.

Either step from straight line is fine.
Multiple Choice - 3 points each.

8. Economics deals primarily with the concept of
   a. poverty.
   b. scarcity.
   c. change.
   d. power.

9. Which of the following concepts is NOT illustrated by the production possibilities frontier?
   a. efficiency
   b. opportunity cost
   c. equity
   d. tradeoffs

10. On the production possibilities frontier shown, the opportunity cost to the economy of getting 10 additional roller blades by moving from point A to point B is
    a. 15 bikes.
    b. 10 bikes.
    c. 5 bikes.
    d. It is impossible to know the opportunity cost without knowing the cost of the resources used to produce the additional roller blades.

A rational decisionmaker takes an action only if
    a. the marginal benefit is greater than the marginal cost.
    b. the marginal benefit is less than the marginal cost.
    c. the average benefit is greater than the average cost.
    d. the marginal benefit is greater than both the average cost and the marginal cost.

12. Trade between the United States and Mexico
    a. is a losing proposition for Mexico because U.S. workers are more productive.
    b. is a losing proposition for the U.S. because Mexico has cheaper labor.
    c. is like a sports contest: one side wins and the other side loses.
    d. benefits both the United States and Mexico.
13. Suppose you make gold jewelry. If the price of gold falls, we would expect
   a. you to be willing and able to produce more jewelry than before at each possible
      price.
   b. you to be willing and able to produce less jewelry than before at each possible
      price.
   c. you will face a greater demand for your jewelry.
   d. you will face a weaker demand for your jewelry.

14. Whenever the price of a good changes,
   a. there is a change in supply and demand.
   b. there is only a change in supply.
   c. there would be a movement along a supply curve and/or demand curve.
   d. there would be no effect in the market.

15 If sellers do NOT respond at all to a change in price,
   a. supply must be perfectly inelastic.
   b. supply must be perfectly elastic.
   c. a long period of time must have elapsed.
   d. technological advancement must be great.

16 When demand is inelastic, a decrease in price will cause
   a. an increase in total revenue.
   b. a decrease in total revenue.
   c. no change in total revenue.
   d. There is insufficient information to answer this question.

17 Under rent control, landlords cease to be responsive to tenants’ concerns about the
   quality of the housing because
   a. with shortages and waiting lists, they have no incentive to maintain and improve
      the property.
   b. they know they can never please their tenants.
   c. the law no longer requires them to maintain their buildings.
   d. that is the government’s responsibility.

18 If the minimum wage is above the equilibrium wage,
   a. the quantity demanded of labor will be greater than the quantity supplied
   b. the quantity demanded of labor will equal the quantity supplied.
   c. the quantity demanded of labor will be less than the quantity supplied.
   d. anyone who wants a job at the minimum wage can find one.
19. Refer to the graph shown. What area represents consumer surplus when the price is $P_1$?

a. A  

b. B  

c. C  

d. D

20. Refer to the graph shown. What area represents total surplus in the market when the price is $P_1$?

a. A + B  

b. B + C  

c. C + D  

d. A + B + C + D

Extra credit. 2 points Credit only given if answered correctly and no more than one absence in this section of the course.

In the graph to the right, show the effect of increasing gasoline prices and the resulting use of ethanol on the market for corn. (Note: corn can be used to make ethanol.)