1. Land and Labor are used to produce Beer and Spam. The country has 150 units of Labor and 100 units of Land. Unit factor requirements are as shown in the table below:

<table>
<thead>
<tr>
<th>Industry</th>
<th>(a_T (\text{Land}))</th>
<th>(a_L (\text{Labor}))</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spam</td>
<td>1</td>
<td>1.25</td>
</tr>
<tr>
<td>Beer</td>
<td>0.5</td>
<td>1</td>
</tr>
</tbody>
</table>

A. (2 points) According to the Table, which industry is **Labor intensive**? **BEER**, since \(1/0.5=2\) is greater than \(1.25/1=1.25\).

*Note that to determine which industry is labor intensive, you need to compare \(a_L/a_T\) in both industries.*

B. (1 point) The graph at the right shows the resource constraints for Land and for Labor. Please identify which of the two straight lines is the **Land resource constraint**, based on the information given above: is it the solid line or the dashed line? **Dashed line**

*Here’s one way to tell. The Land resource constraint is \(100 = 1 \times Q_S + 0.5 \times Q_B\). There is enough Land to produce as much as 100 units of Spam, or \(100/0.5 = 200\) units of Beer. Only the dashed line goes through the points (0, 200) and (100,0).*

C. (2 points) At the point labeled “X” in the graph, which of the following is true?

i. Some Labor is unemployed and all Land is fully employed

ii. **Some Land is unemployed and all Labor is fully employed**

iii. More than 100 units of Land are needed to produce at this point

iv. More than 150 units of Labor are needed to produce at this point.

D. (1 point) Draw the economy’s PPF in the graph. *You should all have gotten this right! Trace over the Labor constraint from the point (0,150) to the intersection of the two lines. Then trade the Land constraint down to the point (100,0).*

E. (1 point) If the economy moves from producing at point “X” to producing at point “Y”, which of the following also occurs:

i. The economy has to give up less Beer to produce every additional unit of Spam

ii. All resources in the economy become fully employed

iii. **The economy has to give up more Beer to produce every additional unit of Spam**

iv. The industry that was Labor intensive at point X becomes Land intensive at point Y
2. The graph below shows a PPF for the economy that produces Wine and Cheese. Please assume each space represents 100 units of output. Suppose the price of Wine in terms of Cheese \((P_W/P_C)\) is equal to 1/3. The production point that maximizes the total value of the country’s output is drawn in the graph with a large dot.

i. (1 point) Which of the following must be true at this value-maximizing point (choose the best answer)?
   a. The slope of the PPF = 3
   b. The slope of the PPF > 3
   c. The slope of the PPF = 1/3
   d. The slope of the PPF < 1/3

ii. (1 point) If the economy produces 500 units of Wine and 200 units of Cheese when the price of Wine in terms of Cheese equals 1/3, which of the following must be true (choose the best answer)?
   a. \(\Delta C/\Delta W > P_W/P_C\)
   b. \(\Delta C/\Delta W < P_W/P_C\)
   c. \(\Delta C/\Delta W = P_W/P_C\)
   d. \(\Delta C/\Delta W > P_C/P_W\)

   At this point, the slope of the PPF is greater than 1/3

iii. (1 point) As you move up and to the left along the PPF above (i.e., produce more Cheese and less Wine), which of the following also occurs:
   a. The ratio of Land to Labor used in Wine production rises.
   b. The ratio of Land to Labor used in each industry remains unchanged.
   c. The ratio of Land to Labor used in Cheese production rises.
   d. There is not enough information to answer this question.