1. The principle of comparative advantage is important in economics. Consider the example of two young boys, Aaron and Derek, who spend their days running around the house and annoying mom. In one day, they have the following production possibilities:

<table>
<thead>
<tr>
<th></th>
<th>Running</th>
<th>Annoying</th>
<th>Cost of 1R</th>
<th>Cost of 1A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aaron</td>
<td>15</td>
<td>10</td>
<td>10/15=2/3</td>
<td>15/10=3/2</td>
</tr>
<tr>
<td>Derek</td>
<td>18</td>
<td>24</td>
<td>24/18=4/3</td>
<td>18/24=3/4</td>
</tr>
</tbody>
</table>

A. Calculate the opportunity cost of each activity for each person.

*Given above.*

Each person requires nine units of running per day to stay in shape and, after that, would like to annoy mom as much as possible.

B. If they do not trade, how much annoying can each boy do?

*Aaron does 9R, this takes 9/15 or 3/5 of his time, leaving 2/5 of his time to annoy mom, so he will be able to do 2/5 x 10 = 4 units of annoying.*

*Derek does 9R, this takes 9/18 or ½ of his time, leaving ½ of his time to annoy mom, so he will be able to do ½ x 24 = 12 units of annoying.*

*The total amount of annoying is 4+12=16.*

C. If they specialize and trade (ignoring the technical difficulties involved in trading exercise, cool though it might be), what is the total gain in terms of units of annoying mom?

*They need 18 units of running to stay in shape. Aaron has comparative advantage in running and he will spend all of his time running and do 15 units. This means that Derek has to make up the difference in running (18-15=3 units). This takes 3/24 or 1/8 of his time, leaving 7/8 of his time to annoy mom, so he will be able to do 7/8 x 24 = 21 units of annoying.*

*The gain is 21-16 = 5 units of annoying.*
2. One of the concepts from the book was the general idea of the tradeoff between efficiency and equity.

A. Explain what this idea means in general.

*Things that make an economy more efficient generally make it less equitable, usually meaning that these things tend to leave income less evenly distributed.*

*Similarly, things that make the distribution of income in an economy more even tend to make the economy less efficient.*

B. If you imagine an income tax, how might the tradeoff between efficiency and equity be reflected in the rates of that tax?

*A higher income tax rate will leave income more equitably distributed but will be less efficient because it will reduce the incentive that people have to work hard and earn a high income.*

3. Show the effect of the following events on the market for credit in the U.S.

A. Interest rates in Japan and Germany rise dramatically, meaning that investors can get better returns on their money there.

*This will lead to investors investing in Japan and Germany instead of in the U.S., decreasing supply in the U.S., leading to less lending and higher interest rates in the U.S.*

B. Business owners anticipate strong growth over the next couple of years.

*This will increase demand for credit as businesses seek to borrow more to finance new capital improvements.*
4. If a tree fell on your house and you hired a foreign company to come and repair your house, would the value of those repair services be counted in GDP or GNP or neither or both? Explain.

This would be included in GDP because the work is done within the country but it would not be included in GNP because the work is done by a foreign company.
5. Show the effect of the following events on the AS/AD model.

A. New minimum wage and mandatory benefit laws make it much more expensive to hire workers.

*This increases production costs and reduces AS, raising price levels and lowering GDP.*

B. A large influx of investment dollars from a newly discovered planet dramatically lowers interest rates.

*This increases AD, increasing GDP and increasing price levels.*

C. Dismal Doomsayers, Inc., a highly respected economic forecasting service, predicts a severe recession in the next year.

*This decreases AD, lowering price levels and GDP.*
6. We discussed an augmented version of the AS/AD model that included the long run aggregate supply curve.

A. In an AS/AD model with both a short run aggregate supply (SRAS) and a long run aggregate supply (LRAS) curve, show and explain how an economy can recover from a recession on its own with little or no active government response.

If an economy is in recession, this probably means that GDP is below the full employment level of GDP and unemployment is high. High unemployment will lead to falling wages which will shift SRAS down, leading to lower price levels and higher GDP.

B. Explain why this recovery may take a prohibitively long time.
This may take a long time because wages don’t typically fall very quickly.
7. One important macroeconomic concept is unemployment.

A. In a country with a population of ten million people, what is the unemployment rate if there are four million people working and one million people actively seeking work?

\[
\text{Unemployment Rate} = \left(1 - \frac{\text{employed}}{\text{labor force}}\right) \times 100\%
\]

\[
\text{Unemployment Rate} = \left(1 - \frac{4M}{4M + 1M}\right) \times 100\%
\]

Unemployment Rate = 20%

B. In an AS/AD model, what kind of shift is consistent with increasing unemployment and an increasing price level?

This is a reduction in AS, a situation also known as stagflation.
8. The following numbers describe real GDP (RGDP) and price level in an economy.

<table>
<thead>
<tr>
<th>Year</th>
<th>RGDP</th>
<th>Price Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>3300</td>
<td>100</td>
</tr>
<tr>
<td>2001</td>
<td>3400</td>
<td>110</td>
</tr>
</tbody>
</table>

A. Calculate the nominal GDP for the year 2001.

\[
\text{Real GDP} = \frac{\text{Nominal GDP}}{\text{Price Level}} 
\times 100
\]

\[
\text{Nominal GDP} = \frac{\text{Real GDP} \times \text{Price Level}}{100} = \frac{3400 \times 110}{100} = 3730
\]

B. By what percentage did each of the following change over the year:

i. real GDP

\[
\frac{3400 - 3300}{3300} \times 100\% = 3.03\%
\]

ii. the price level

\[
\frac{110 - 100}{100} \times 100\% = 10\%
\]

iii. nominal GDP

\[
\frac{3730 - 3300}{3300} \times 100\% = 13.03\%
\]

C. In terms of the AS/AD model, what kind of shift is consistent with the data shown above?

*Price level increases and real GPD increases. This is consistent with an increase in AD.*

D. What happened to real per capita GDP from 2000 to 2001?

*You can’t tell because you don’t know what happened to population. However, if the population rose by less than 3.03% then real per capita GDP would have risen.*