1) Our model of comparative advantage assumes that changes in wages and changes in productivity move together. More specifically, as a country's productivity increases, the model predicts that average wages also increase. To test this prediction, find data on hourly production and hourly compensation in manufacturing for 5 industrialized countries since 1979. Graph the relationship between the change in productivity and the change in wages. If you understand regression analysis, you can use a regression to predict changes in wages (the dependent variable) based on changes in productivity (the independent variable), even though the sample size is too small to draw robust conclusions. Do productivity changes explain a large part of wage changes? Are the results consistent with the prediction?

Data: Go to the BLS site at [http://stats.bls.gov/news.release/prod4.toc.htm](http://stats.bls.gov/news.release/prod4.toc.htm) then look at the tables in the report, also at [http://stats.bls.gov/data/#productivity](http://stats.bls.gov/data/#productivity) click ‘productivity’ and then ‘foreign labor statistics’ (for annual data on productivity and hourly compensation).

2) Japanese labor productivity is roughly the same as that of the United States in the manufacturing sector (higher in some industries, lower in others), while the United States is still considerably more productive in the service sector. But most services are nontraded. Some analysts have argued that this poses a problem for the United States, because our comparative advantage lies in things we cannot sell on world markets. What is wrong with this argument?

3) The difference between GNP and GDP in the United States is trivial, but in some countries it is large. Find this difference for a few different countries for one year. Explain why it is large or small. Think about the degree of payments to foreign owners of capital goods and labor services in the countries that you selected.

Data: The Penn World Tables at [http://datacentre.chass.utoronto.ca/pwt/](http://datacentre.chass.utoronto.ca/pwt/) have a variable called "RATIO OF GNP TO GDP" for various countries.

4) The current account can be defined in three different ways. First, the current account is mostly made up of the trade balance (exports – imports). Second, it is measured as the difference between a country’s savings and investment. Third, it is the addition to (or reduction of) a country’s claims on the rest of the world. Explain each of these definitions in more detail.

5) For all parts of this question, be sure to explain the intuition behind your answer, in addition to any mathematical expressions you use. Consider an open market purchase of British Treasury securities by the Bank of England that results in a 500,000 pound increase in the monetary base.

a) Suppose that individuals hold no currency and banks hold only required reserves (with a required reserve ratio of .10). How much will M1 rise?

b) Because of fears about how many people will want to withdraw their deposits, all banks now hold 5% of deposits as excess reserves (beyond what is required), and people fearful of bank failures now hold cash. Specifically, people take 15% of any loan they receive and hold it as cash (and also take 15% of the initial payment for their bond and hold it as cash), putting the remainder in the bank. Using balance sheets for 3 banks in the banking system (there are many, but you should show the "first" three to be affected by the open market purchase), show what will happen if the same 500,000 pound open market purchase is undertaken. (You should show changes to the balance sheets (reserves, loans and deposits), not actual balances.) Also, show what the currency deposit ratio will be in this case.

c) What are the money multipliers in (a) and (b)? Explain intuitively why they differ.