Finance 30220
Problem Set #2

1) Consider the following data from the US economy.

Year	Real GDP	Real Capital Stock	Employment
1980	5,830	7,446	90,800
1990	7,646	8,564	109,151

Assume that production can be represented by the following production function:

$$Y = AK^{\frac{1}{4}}L^{\frac{3}{4}}$$

Calculate the average annual rate of productivity growth during the 1980's.

2) Consider the following economy:

$$Y = AK^{\frac{1}{3}}L^{\frac{2}{3}}$$

Parameter	Value
θ	5%
δ	10%
g_L	4%
g_A	2%
A	8

Currently, the economy has a labor force of 2,000 and a capital stock equal to 4,000.

a) Calculate this country's current rate of economic growth.
b) Assuming productivity at it's current level of 8, calculate the steady state.
c) How fast will this country grow annually once its steady state is reached?
d) Calculate the steady state level of per capita output that maximizes steady state consumption per capita.

3) Suppose that the privatization of the social security system raises the savings rate in the U.S. Explain the impact on per capita income in the US. Will long run growth be affected?

4) During World War II, many countries (most notably Germany and Japan) lost substantial portions of their capital stock while the U.S. emerged relatively unharmed. Explain the impact of the war on the level and growth of income per capita in Germany and Japan.

5) The data shows that population growth in developed countries is lower than that of developing countries. Explain the impact of a decline in population growth on GDP growth.

6) The US government is continually growing relative to the overall US economy. Assuming that government spending is completely wasteful, explain the impact on economic growth of an expanding government.