14.02 Principles of Macroeconomics
Problem Set 1
Fall 2004

Posted: Monday, September 15, 2004
Due in class: Wednesday, September 22, 2004

Part I. True/False/Uncertain
Justify your answer with a short argument.

1. From 1960 to 2000, the US, EU, and Japan all have experienced similar rates of
    unemployment.

2. GDP is the value of all goods and services produced in the economy.

3. The Phillips Curve describes the negative relationship between the change in unemployment
    rate and inflation.

4. Inflation is bad for the economy because goods and services are more expensive.

5. The multiplier (Keynesian multiplier) is always greater than 1 if T = 0 and G = 0.

Part II. NATIONAL ACCOUNTS (GDP, GDP DEFLATOR & CPI)

For part II, assume the following:
1. MIT is an autonomous country.
2. The only good/service produced at MIT is undergrad (freshmen) education.

1. Fill in the following:

year	# of MIT freshmen	Price (Tuition)	Nominal GDP	Real GDP (1950 $)	Real GDP (2000$)
1950	300	2,000			
2000	900	20,000			
2001	1,000	21,000			
2002	1,100	23,000			
2003	1,000	25,000			
2004	1,200	28,000			

2. Find the growth rate of nominal GDP for 2002, 2003 and 2004.

3. Find the growth rate of real GDP (using 2000 $) for 2002, 2003 and 2004.

4. Find the growth rate of real GDP (using 1950 $) for 2002, 2003 and 2004.

5. Why are your answers in 2, 3 and 4 different/same?

6. Compute inflation using GDP deflator (using 2000$) for 2002, 2003, 2004.

7. Beside GDP deflator what other price indices are used in measuring inflation?

8. Which one is the best? Why?

Part III. THE GOODS MARKET
(All units are millions of US dollars)

$C = 500 + (0.5)Y_D$
$I = 100$
$T = 80$
$G = 200$

1. Solve for the goods market equilibrium. (Find equilibrium Y, Z, C, and Y_D.)

2. Graph (with correct labels) equilibrium Y and Z.

3. Solve for private saving and public saving.

4. What is the value of marginal propensity to consume (mpc)? What does it mean?

5. What is the value of marginal propensity to save (mps)?

6. What is the relationship between mpc and mps?

7. Find the multiplier and autonomous spending. Explain what they mean.

8. Now, the government is facing a reelection and increases G from 200 to 240. (Fiscal expansion) Why would the government want do so? Find the equilibrium demand, output, consumption, and disposable income, then graph.