

Name:  
Section:  
T.A. Name

## 180.101 ELEMENTS OF MACROECONOMICS

Fall, 2011

Problem Set #1

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### Answer key

INSTRUCTIONS: Above, write your name, section number and T. A. name. Answer each question in the space provided, or on the back of the same sheet.

1. “Nominal GDP includes the current value of services produced in the economy.” True, False, Uncertain. Explain.

True: Nominal GDP is intended to measure the final output of all goods and services. In fact, services are now a larger fraction of the US economy than manufactured goods or goods as a whole.

2. Compare and contrast the Consumer Price Index with the Implicit Price Deflator for GDP as a measure of the over-all price level for the economy.

CPI has limitations as a measure of the price level for the whole economy:

- a) Ignores non-urban consumers and the prices of goods consumed by them.
- b) Ignores the prices of investment goods, especially plant and equipment prices.
- c) Ignores the prices of goods purchased by the government.

3. Which of the following items are included in GDP? For those items not included, explain why they are not included in GDP.

- a. Jane buys newly issued shares of stock in Macro.com, Inc.
- b. Ross buys a new pair of jeans at a local department store.
- c. Joey has his mustache trimmed at his hair salon.
- d. Rachel buys an antique chest at a resale shop.
- e. Monica makes her own pasta sauce in her apartment.
- f. Cars produced by General Motors in Mexico

a. Not included: This is a financial investment. No good or service has been produced.

b. Included.

c. Included.

d. Not included: Produced in a previous year.

e. Not included: Household production.

f. Not included in US GDP. Included in Mexico's GDP because the car was produced in Mexico.

4. Consider the following data for a closed economy (that is, one without exports or imports):

Consumption Expenditures	500
Wages and Salaries	600
Government Expenditures	300
Personal Taxes	300
Profits	250
Interest	100
Rent	?
Investment Expenditures	375

Compute Gross Domestic Product according to both the expenditure and income approaches. Show your work.

Using the Expenditure Approach and assuming a closed economy, GDP is calculated as

$$\begin{aligned}GDP_{Exp} &= C + I + G \\ &= 500 + 375 + 300 = 1175\end{aligned}$$

Now, using the Factor Income approach, GDP can be calculated as

$$\begin{aligned}GDP_{FI} &= WS + PR + IN + RT \\ &= 600 + 250 + 100 + RT\end{aligned}$$

Rent, RT, is unknown, but by National Income Principles,

$$GDP_{FI} = GDP_{Exp}$$

Hence,

$$GDP_{FI} = 1175$$

and thus solving for RT

$$RT = 1175 - 950 = 225$$

Note that “personal taxes” are paid out of wages and salaries, profits, etc. That is, personal taxes are paid out of the income that is generated. They are therefore already counted in income. They are not a separate or additional income and thus are not a separate or additional component of the factor income approach. They therefore can be ignored.

5. Consider an economy that produces only rice. In 2000, the price of rice was \$5 per pound and 1500 pounds were produced, giving the economy a nominal GDP of \$7500. In 2001, the price of rice rose to \$8 per pound and nominal GDP was calculated at \$11,000. What was real GDP in 2001? Did real GDP rise or fall? Explain carefully.

<u>Year</u>	<u>Nominal GDP</u>	<u>Price of Rice</u>	<u># of Pounds Produced</u>	<u>GDP (2000\$)</u>
2000	\$7,500	\$5	1,500	\$7,500
2001	\$11,000	\$8	1,375	\$6,875

- a) In 2001, the number of pounds of rice that was produced =  $1,375 = \$11,000/\$8$ .
- b) Real GDP, which is denoted simply as GDP, is measured in constant or base year dollars. Specifically, assume that 2000 is the base year, so that GDP is measured in 2000\$. Then, GDP for 2001 in 2000\$ is

$$\text{GDP-2001} = \$5 \times 1,375 = \$6,875$$

- c) Hence, real GDP fell in 2001 despite the fact that nominal GDP rose. The reason is that the rate of inflation in the rice of rice for 2001 was larger than the growth rate of nominal GDP. Hence, real GDP had to fall.