

Problem Set 4, Econ 2100
Fall 2009 (Due Wed. Oct. 21)

- 1) George and John, stranded on an island, use clamshells for money. Last year George caught 300 fish and 5 wild boars. John grew 200 bunches of bananas. In this two-person economy that George and John set up, fish sell for 1 clamshell each, boars sell for 10 clamshells each, and bananas go for 5 clamshells a bunch. George paid John a total of 30 clamshells for helping him to dig bait for fishing, and he also purchased five of John's mature banana trees for 30 clamshells each. What is the GDP of George's and John's island in terms of clamshells?
- 2) How would each of the following transactions affect the GDP of the United States?
 - a. The U.S. government pays \$1 billion in salaries for government workers.
 - b. The U.S. government pays \$1 billion to Social Security recipients.
 - c. The U.S. government pays a U.S. firm \$1 billion for newly produced airplane parts.
 - d. The U.S. government pays \$1 billion in interest to holders of U.S. government bonds.
 - e. The U.S. government pays \$1 billion to Saudi Arabia for crude oil to add to U.S. official oil reserves.
- 3) Intelligence Incorporated produces 100 computer chips and sells them for \$200 each to Bell Computers. Using the chips and other labor and materials, Bell produces 100 personal computers. Bell sells the computers, bundled with software that Bell licenses from Microsoft at \$50 per computer, to PC Charlie's for \$800 each. PC Charlie's sells the computers to the public for \$1,000 each. Calculate the total contribution to GDP using the value-added method. Do you get the same answer by summing up the market values of final goods and services?
- 4) Here are some data for an economy. Find its GDP. Explain your calculation.

Consumption expenditures	600
Exports	75
Government purchases of goods and services	200
Construction of new homes and apartments	100
Sales of existing homes and apartments	200
Imports	50
Beginning-of-year inventory stocks	100
End-of-year inventory stocks	125
Business fixed investment	100
Government payments to retirees	100
Household purchases of durable goods	150

- 5) The nation of Potchatoonie produces hockey pucks, cases of root beer, and back rubs. Here are data on prices and quantities of the three goods in the years 2000 and 2007.

Year	Pucks		Root beer		Back rubs	
	Quantity	Price	Quantity	Price	Quantity	Price
2000	100	\$5	300	\$20	100	\$20
2007	125	\$7	250	\$20	110	\$25

Assume that 2000 is the base year. Find nominal GDP and real GDP for both years.

- 6) Here is a report from a not-very-efficient BLS survey taker: "There were 65 people in the houses I visited, 10 of them children under 16 and 10 retired; 25 people had full-time jobs, and 5 had part-time jobs. There were 5 full-time homemakers, 5 full-time students over age 16, and 2 people who were disabled and cannot work. The remaining people did not have jobs but all said they would like one. One of these people had not looked actively for work for 3 months, however." Find the labor force, the unemployment rate, and the participation rate implied by the survey taker's report.
- 7) Ellen is downloading labor market data for the most recent month, but her connection is slow and so far this is all she has been able to get:

Unemployment rate: 5.0%; Participation rate: 62.5%; Not in the labor force: 60 million

Find the labor force, the working-age population, the number of employed workers, and the number of unemployed workers.