

PROBLEMS AND SHORT-ANSWER QUESTIONS

Practice Problems

1. a. Complete the following table.

	Year 1	Year 2	Year 3
Gross Domestic Product	4,532	4,804	
Consumption		3,320	3,544
Investment	589	629	673
Government Purchases	861		977
Net Exports	-45	-58	-54

- b. What is the largest expenditure component of GDP?

- c. Does investment include the purchase of stocks and bonds? Why?

- d. Do government purchases include government spending on unemployment checks? Why?

- e. What does it mean to say that net exports are negative?

2. Suppose the base year in the following table is 2003.

Year	Production of X	Price per Unit of X
2003	20 units	\$ 5
2004	20 units	10
2005	20 units	20

- a. What is nominal GDP for 2003, 2004, and 2005?

- b. What is real GDP for 2003, 2004, and 2005?

3. Suppose the following table records the total output and prices for an entire economy. Further, suppose the base year in the following table is 2003.

Year	Price of Soda	Quantity of Soda	Price of Jeans	Quantity of Jeans
2003	\$1.00	200	\$10.00	50
2004	1.00	220	11.00	50

- a. What is the value of nominal GDP in 2003?

- b. What is the value of real GDP in 2003?

- c. What is the value of nominal GDP in 2004?

- d. What is the value of real GDP in 2004?

- e. What is the value of the GDP deflator in 2003?

- f. What is the value of the GDP deflator in 2004?

- g. From 2003 to 2004, prices rose approximately what percentage?

- h. Was the increase in nominal GDP from 2003 to 2004 mostly due to an increase in real output or due to an increase in prices?

4. Complete the following table.

Year	Nominal GDP	Real GDP	GDP Deflator
1		\$100	100
2	\$120		120
3	150	125	

- a. What year is the base year? How can you tell?

- b. From year 1 to year 2, did real output rise or did prices rise? Explain?

- c. From year 2 to year 3, did real output rise or did prices rise? Explain?

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1. The following table shows the prices and the quantities consumed in the country known as the University States. Suppose the base year is 2002. Also, suppose that 2002 is the year the typical consumption basket was determined, so the quantities consumed during 2002 are the only quantities needed to calculate the CPI in every year.

Year	Price of Books	Quantity of Books	Price of Pencils	Quantity of Pencils	Price of Pens	Quantity of Pens
2002	\$50	10	\$1.00	100	\$5	100
2003	50	12	1.00	200	10	50
2004	60	12	1.50	250	20	20

- What is the value of the CPI in 2002?

- What is the value of the CPI in 2003?

- What is the value of the CPI in 2004?

- What is the inflation rate in 2003?

- What is the inflation rate in 2004?

- What type of bias do you observe in the CPI and corresponding inflation rates you generated above? Explain.

- If you had a COLA clause in your wage contract based on the CPI calculated above, would your standard of living likely increase, decrease, or stay the same during the years 2002 through 2004? Why?

- h. Again, suppose you had a COLA clause in your wage contract based on the CPI calculated above. If you personally only consume pens (no paper or pencils), would your standard of living likely increase, decrease, or stay the same during the years 2002 through 2004? Why?

2. The following table contains the CPI and the Federal Minimum Hourly Wage Rates for the period 1965 through 2000.

Year	CPI	Minimum Wage
1965	31.5	\$1.25
1966	32.4	1.25
1967	33.4	1.40
1968	34.8	1.60
1969	36.7	1.60
1970	38.8	1.60
1971	40.5	1.60
1972	41.8	1.60
1973	44.4	1.60
1974	49.3	2.00
1975	53.8	2.10
1976	56.9	2.30
1977	60.6	2.30
1978	65.2	2.65
1979	72.6	2.90
1980	82.4	3.10
1981	90.9	3.35
1982	96.5	3.35
1983	99.6	3.35
1984	103.9	3.35
1985	107.6	3.35
1986	109.6	3.35
1987	113.6	3.35
1988	118.3	3.35
1989	124.0	3.35
1990	130.7	3.80
1991	136.2	4.25
1992	140.3	4.25
1993	144.5	4.25
1994	148.2	4.25
1995	152.4	4.25
1996	156.9	4.75
1997	160.5	5.15
1998	163.0	5.15
1999	166.6	5.15
2000	172.2	5.15

- a. Inflate the 1965 minimum wage to its equivalent value measured in 1990 prices.
- _____
- _____
- b. What happened to the standard of living of minimum-wage workers over this 25-year period?
- _____
- _____
- c. Deflate the 1990 minimum wage to its equivalent value measured in 1965 prices.
- _____
- _____
- d. Do these two methods give you consistent results with regard to the standard of living of minimum-wage workers over time?
- _____
- _____
- e. The minimum wage did not change over the eight-year period from 1981 to 1989. By what percentage did the purchasing power of the minimum wage decline over this period? (Hint: Inflate the value of the minimum wage in 1981 to its equivalent in 1989. Then generate the percent change.)
- _____
- _____
- f. What happened to the standard of living of minimum-wage workers over the period from 1990 to 2000? (Inflate the 1990 minimum wage and compare it to the 2000 minimum wage.)
- _____
- _____
3. Suppose that you lend your roommate \$100 for one year at 9 percent nominal interest.
- a. How many dollars of interest will your roommate pay you at the end of the year?
- _____
- _____
- b. Suppose at the time you both agreed to the terms of the loan, you both expected the inflation rate to be 5 percent during the year of the loan. What do you both expect the real interest rate to be on the loan?
- _____
- _____
- c. Suppose at the end of the year, you are surprised to discover that the actual inflation rate over the year was 8 percent. What was the actual real interest rate generated by this loan?
- _____
- _____
- d. In the case described above, actual inflation turned out to be higher than expected. Which of the two of you had the unexpected gain or loss—your roommate (the borrower) or you (the lender)? Why?
- _____
- _____
- _____
- e. What would the real interest rate on the loan have been if the actual inflation rate had turned out to be a whopping 11 percent?
- _____
- _____
- f. Explain what it means to have a negative real interest rate.
- _____
- _____
- _____
- _____

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1. Use the following information about Employment Country to answer question 1. Numbers are in millions.

	2004	2005
Population	223.6	226.5
Adult population	168.2	169.5
Number of unemployed	7.4	8.1
Number of employed	105.2	104.2

- What is the labor force in 2004 and 2005?

 - What is the labor force participation rate in 2004 and 2005?

 - What is the unemployment rate in 2004 and 2005?

 - From 2004 to 2005, the adult population went up while the labor force went down. Provide a number of explanations why this might have occurred.

 - If the natural rate of unemployment in Employment Country is 6.6 percent, how much is cyclical unemployment in 2004 and 2005? Is Employment Country likely to be experiencing a recession in either of these years?

2. Suppose the labor market is segmented into two distinct markets: the market for low-skill workers and the market for high-skill workers. Further, suppose the competitive equilibrium wage in the low-skill market is \$3.00/hour while the competitive equilibrium wage in the high-skill market is \$15.00/hour.

- If the minimum wage is set at \$5.00/hour, which market will exhibit the greatest amount of unemployment? Demonstrate it graphically in Exhibit 1.

- Does the minimum wage have any impact on the high-skill market? Why?

- Do your results seem consistent with labor market statistics? Explain.

- Suppose the high-skill market becomes unionized and the new negotiated wage is \$18.00/hour. Will this have any effect on the low-skill market? Explain.

3. Answer the following questions about the composition of unemployment.
- What are some of the sources of unemployment?

b. Which type of unemployment is initiated by the firm?

c. Why might a firm pay wages in excess of the competitive equilibrium?

d. Which type of efficiency wage is unlikely to be relevant in the United States? Why?

e. How does frictional unemployment differ from the other sources of unemployment?
