

Econ 102: Principles of Macroeconomics
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Problem 1 (CPI; GDP Deflator)

The country of *Zaponia* produces 3 goods: *apples, iPods and coconuts*. All these goods are final goods, and all the production is for the marketplace. The table below summarizes the information on production and market prices in *Zaponia*.

		Good		
Year	Variable	Apples	iPods	Coconuts
1992	Quantity	5	20	10
	Price	\$1	\$1	\$1
1993	Quantity	6	40	11
	Price	\$3	\$1	\$2
1994	Quantity	7	80	12
	Price	\$4	\$1	\$3

- a. The consumers in *Zaponia* always purchase 3 apples and 2 iPods from domestic production and import 1 gallon of oil (HINT: this is the consumption basket you should use to calculate the CPI). The rest of the goods produced in *Zaponia* is exported. The price of imported oil (per gallon) was \$1 in year 1992, \$1.5 in year 1993 and \$2 in year 1994. Fill in the table below:

Your answer:

Year	Nominal GDP	Real GDP at constant prices from year 1992	CPI	Deflator of GDP
1992	35	35	100	100
1993				
1994				

- b. Using the table above compute the inflation rate in year 1993 (between year 1992 and 1993) and year 1994 using the CPI approach and the GDP deflator approach.

Your answer:

Inflation in year 1993 measured using the CPI approach was

Inflation in year 1993 measured using the GDP deflator approach was.....

Inflation in year 1994 measured using the CPI approach was

Inflation in year 1994 measured using the GDP deflator approach was.....

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Problem 2 (Nominal Interest Rate and Real Interest Rate)

Refer to the data from problem 1 above. Suppose the nominal interest rate in *Zaponia* in year 1993 was 120% and in year 1994 it was 156%. Compute the real interest rate in years 1993 and 1994 (use CPI inflation). Because the numbers involved here are very large, use the exact formula. Compare how big mistake you would make, if you used instead the approximate formula (nominal interest rate – inflation rate).

Your answer:

Real Interest Rate in *Zaponia* in 1993 was

(Approximate formula would give: Approximation error is)

Real Interest Rate in *Zaponia* in 1994 was

(Approximate formula would give: Approximation error is)

Problem 3 (Transforming Nominal Variables to Real Variable Using the CPI)

Complete the following table. Assume the reported CPI values are for the end of each year.

Your answer:

Year	CPI	Inflation Rate	Nominal Wage	Real Wage
1	37	X	\$5.6	
2	48		\$7	
3		10	\$11.26	
4		19		\$25
5	60		\$15	

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Problem 4 (Changing the Base Year)

In the table below you are given data about CPI in the US. Suppose you want to change the base period of the CPI from 1983 (column 2) to December 2000 (column 3).

Recalculate December's CPI for each of the years listed in the table below, so that the table gives the same information about inflation, but the CPI in December 2000 now has the value 100 instead of 174.0.

Your answer:

Year	CPI in the US (end of year) Base year: 1983	CPI in the US (end of year) Base year: 2000
1970	39.8	
1980	86.3	
1990	133.8	
2000	174.0	
2001	176.7	
2002	180.9	
2003	184.3	
2004	190.3	
2005	196.8	

Problem 5 (Exploring the CPI Calculator)

Go to the following website: <http://www.minneapolisfed.org/>

You will find there a CPI calculator (on the right-hand-side of the screen). Using this calculator, fill in the empty space below:

If in year 1950 I bought goods or services for \$2000 then in year 2005

Your answer:

the same goods or services would cost \$.....

Problem 6 (True/False)

For each of the following statements, circle T if the statement is true, or F if it is false.

- T F Over a period during which prices are rising, the inflation rate must be rising as well.
- T F If the price index goes up over the year from 200 to 230, the rate of inflation for the year is 30%
- T F When inflation is correctly anticipated, does not redistribute purchasing power between borrowers and lenders.

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- T F An example of the “resource cost of inflation is when someone must re=enter data on prices in store’s computer.

Problem 7 (Definitions)

Give the key word that best fits the statement or definition.

- A decrease in the price level from one period to the next
- An index of the price level for all final goods and services included in GDP
- An increase in the price level from one period to the next
- An unusually severe instance of the above