



a) (10 points) Compute nominal GDP for each year.

**(5pt) Nominal GDP 2007 = \$4 x 2000 + \$10 x 5000 + \$10,000 x 25,000 = \$250,058,000**

**(5pt) Nominal GDP 2008 = \$5 x 2500 + \$8 x 4000 + \$11,000 x 30000 = \$330,044,500**

b) (15 points) Suppose the base year is 2007. Compute real GDP for both years.

**(5pt) Real GDP 2007 = \$4 x 2000 + \$10 x 5000 + \$10,000 x 25000 = \$250,058,000**

**(10pt) Real GDP 2008 = \$4 x 2500 + \$10 x 4000 + \$10,000 x 30000 = \$300,050,000**

c) (5 points) Compute the GDP price deflator for 2008.

**(5pt) GDP deflator 2008 =  $\frac{330044500}{300050000} \times 100 = 109.9965$**

d) (5 points) Compute the inflation rate between 2007 and 2008.

**(5pt) Inflation rate =  $\frac{(109.9965 - 100)}{100} \times 100\% = 9.9965\%$**

4. (10 points) What is substitution bias?

**When some prices rise more than others, people will substitute cheaper goods for more expensive goods. The CPI which measures the cost of buying the base-year basket of goods and services ignores this substitution effect and will overstate the true increase in the cost of living.**

5. (15 points) The population in Missouri is 5 million people. Of those, suppose 4 million are age sixteen or over and not institutionalized. Two million are employed. Lastly, 300,000 are looking for work. Calculate the number of Missourians in the labor force. Next, compute Missouri's unemployment rate.

**(5pt) Labor force = employed + unemployed = 2 million + 300,000 = 2,300,000 people**

**(10pt) Unemployment rate = (number of unemployed / labor force) x 100% = 13.04%**

6. (10 points) Suppose the inflation rate is unexpectedly lower than both the lender and the borrower believed it would be. Who benefits from this change in the actual inflation rate? In your own words, describe how the unexpected decline makes improves things for the beneficiary. In other words, how does the redistribution of resources occur?

**According to the Fisher equation, for any given nominal interest rate, the lower the inflation rate, the higher the real interest rate the lender actually receives. So, unexpectedly lower inflation rate will benefit the lender.**