Be sure to look at questions in the text book as well.

The Consumer Price Index, Inflation, and Real versus Nominal Wages:

Suppose that there are three goods in the economy: gasoline, housing, and food. The prices of each are listed below for three different years. The typical consumer is assumed to purchase a "bundle" that contains 20 gallons of gas, 1 unit of housing, and 30 units of food.

<table>
<thead>
<tr>
<th>PRICE INDEX</th>
<th>1980</th>
<th>1989</th>
<th>1990</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price of a gallon of gas</td>
<td>$1</td>
<td>$1</td>
<td>$2</td>
</tr>
<tr>
<td>Price of a unit of housing</td>
<td>$300</td>
<td>$350</td>
<td>$400</td>
</tr>
<tr>
<td>Price of a unit of food</td>
<td>$2</td>
<td>$3</td>
<td>$3</td>
</tr>
</tbody>
</table>

1. Using 1980 as the base year, compute the consumer price index for:
   a. 1980____________  
   b. 1989____________  
   c. 1990____________

2. What is the inflation rate between 1989 and 1990? ________

3. Suppose that "the bundle" contained more gasoline but the same amount of housing and food. Would the inflation rate computed between 1989 and 1990 be higher or lower? Why?

4. On the basis of the wages rate listed below and the price indexes you computed above, what are the real wage rates (in 1980 dollars)?

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Real Wage Rate</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5. If the real wage rate for 1990 (in 1980 dollars) is $10, on the basis of the price indexes you computed above, what would the nominal wage have to be?
6. How could the nominal wage rate rise but the real wage rate fall over time?
7. How could the real wage rate rise but the nominal wage rate fall over time?

8. Compute the Implicit Price Deflators for each of the above years.
9. What is the base year that must have been used for computing real GNP? How can you tell?
10. According to the available information,
   a. what was the inflation rate between 1990 and 1991?
   b. what was the average annual inflation rate between 1960 and 1990?
   c. On average, how much higher are prices in 1990 than in 1960?

Measuring GNP/GDP
11. What is the difference between GNP and GDP?
12. What are the four components of the expenditure side of GNP?
13. Why is it difficult to make a comparison of two countries' standards of living on the basis of their per capita GNP?
14. When comparing GDP over time to determine how production has changed, should the comparison be based upon real or nominal GDP? Why?

The equation of exchange.

15. According to the equation of exchange, MV=Py. What does each term in this equation represent?

16. If the velocity of money is constant, the nominal money supply grows at 5 percent, and inflation is 2 percent, what does the growth rate in real GDP have to be?

17. If velocity is constant, real GDP increases at 5% and the nominal money supply increases at 3%. What must the inflation rate be?

Answers to chapter 6 questions.
1a. 100; 1b. 121; 1c. 139
2. 13.8%
3. The inflation rate would be higher because the inflation rate for gasoline is higher than that for food or housing. Hence, increasing the "weight" on gasoline would cause the "weighted average" of inflation rates to increase.
5. $13.90
6. Since the real wage equals the nominal wage divided by the price level, the percentage change in the real wage between two periods equals the percentage change in the nominal wage minus the percentage change in the price level. Hence, if prices increase more than nominal wages in percentage terms, the real wage will drop.
7. The only way that the real wage could rise as the nominal wage falls is if prices fall over time (i.e. there is negative inflation). This can be seen using the relationship described in #6.
9. 1987 is the base year because the deflator is 100 for that year.
10a. 3.6%;
10b. 4.2 percent.
10c. 4.3 times higher as demonstrated by the ratio of the 1990 to the 1960 GDP deflator.
11. GDP includes production by domestically located factors of production whereas GNP includes production by domestically owned factors.
12. Consumption (C), Investment (I), Government Spending (G) and Net Exports (NX).
13. Several reasons: Differences in the value of home production (do-it-yourself work), differences in the size of the underground economy, differences in things valued but not sold in the market (environment, safety, etc.).
14. When comparing GNP over time, the comparison should be made on real, not nominal, terms. The reason is that changes in real GNP reflect changes in only the amount of goods and services produced. Changes in nominal GNP can reflect either changes in prices or the amount produced.
15. M=nominal money supply; v=velocity of money; P=price level; y=real GDP (PY=nominal GDP).
16. 3 percent.
17. -2 percent.