



23-1

# Computing the Inflation Rate, the Current Price, and the Original Price

**Inflation** is the general increase in the cost of goods and services. The rate of inflation is a way to measure economic activity. At the corporate level, inflation is observed as increases in wholesale prices, utility costs, production and shipping costs, and demands for scarce materials. Some of the causes of inflation are heavy spending (resulting in high demand), increased production costs while producers try to maintain profit levels, and lack of competition. To calculate the rate of inflation you need to know the current price and the original price of something.

$$\text{Inflation Rate} = (\text{Current Price} - \text{Original Price}) \div \text{Original Price}$$

$$\text{Current Price} = \text{Original Price} + (\text{Original Price} \times \text{Inflation Rate})$$

$$\text{Original Price} = \text{Current Price} \div (1 + \text{Inflation Rate})$$

**Example**

Find the rate of inflation.

Missy and Lyle Winters paid \$100,000 for their condominium when they bought it 5 years ago. A comparable condominium in their neighborhood now sells for \$115,000. What is the inflation rate?

Find the rate of inflation.

$$\text{Inflation Rate} = (\text{Current Price} - \text{Original Price}) \div \text{Original Price}$$

$$(\$115,000 - \$100,000) \div \$100,000 = 15\% \text{ inflation rate}$$

**Practice**

Find the inflation rate (rounded to the nearest tenth percent), the current price, or the original price.

	<b>Inflation Rate</b>	<b>Current Price</b>	<b>Original Price</b>
1.		\$ 5,250.00	\$ 5,000.00
2.		387.50	336.75
3.	6.00%		250.00
4.	4.75%		15,000.00
5.	1.45%	9.99	
6.	10.48%	27,500.00	

- In 1958, a first-class postage stamp cost \$0.04. In 2005, a first-class postage stamp cost \$0.37. What is the rate of inflation over that time period?
- Standardized Test Practice** The cost of a four-year college education 10 years ago was \$50,000. The inflation rate for education since that time is 150 percent. What does a four-year college education cost today?  
 A. \$49,261.08    B. \$125,000    C. \$75,000    D. \$33,333.33

23-2

# Computing the Gross Domestic Product

The *productivity* of a country is a good measure of its economic health. The total value of the goods and services produced in a country in a given year is called its **gross domestic product (GDP)**. Only goods, such as cars, food, and clothing, and services, such as haircuts and appliance repairs, add to the national income. You must compare GDP over a period of time. **Real GDP** (or *adjusted GDP*) is the GDP adjusted to include the effects of inflation. **Per capita GDP** is the amount of goods and services the average citizen can afford to buy, or the GDP per person.

$$\text{Real GDP} = \text{GDP} - (\text{GDP} \times \text{Inflation Rate})$$

$$\text{Per Capita GDP} = \text{GDP} \div \text{Population}$$

**Example**

**Find the per capita GDP.**

China has a population of 500 million and a GDP of \$900 billion. What is the per capita GDP?

Find the per capita GDP.

$$\text{Per Capita GDP} = \text{GDP} \div \text{Population}$$

$$\$900,000,000,000 \div 500,000,000 = \$1,800 \text{ per capita GDP}$$

**Practice**

**Find the real GDP and the per capita GDP.**

	<b>GDP</b>	<b>Inflation Rate</b>	<b>Population</b>	<b>Real GDP</b>	<b>Per Capita GDP</b>
1.	\$150 million	5.00%	1.5 million	a.	b.
2.	55,250,000	2.75%	8,375,000	a.	b.
3.	650 billion	3.25%	180 million	a.	b.
4.	855 million	4.62%	8.84 million	a.	b.
5.	99 billion	10.20%	3.3 billion	a.	b.
6.	87 million	11.85%	2.97 million	a.	b.

7. Ireland has a GDP of \$99.3 billion and an inflation rate of 1.8 percent. What is the country's real GDP?

8. **Standardized Test Practice** Ireland has a GDP of \$99.3 billion and a population of 3,841,000. Belgium has a GDP of \$227.2 billion and a population of 10,259,000. Switzerland has a GDP of \$240.3 billion and a population 7,283,000. Sweden has a GDP of \$228 billion and a population of 8,875,000. Which country has the highest per capita GDP?

- A. Ireland    B. Belgium    C. Switzerland    D. Sweden



## Calculating the Consumer Price Index, the Current Cost, and the Cost of Any Given Commodity

To track inflation, you have to track the price of goods and services at regular intervals and then compare them to the base year. The **consumer price index (CPI)** is a measure of the average change in prices of a certain number of goods and services. The Bureau of Labor Statistics measures items in terms of their 1983 prices. The CPI for 1983 is set at 100. This means that a commodity that cost \$100 in 1983 and that has a CPI of 180.5 today would cost \$180.50 today.

$$\text{Current Cost} = (\text{Cost in 1983} \times \text{CPI}) \div 100$$

### Example

**Find the CPI and the cost in the base year.**

A pair of jeans cost \$27.99 in 1983. Today, the same pair of jeans costs \$39.99. What is the CPI for the jeans? If the CPI is the same for all jeans, what was the cost of a pair of jeans in 1983 that costs \$34.99 today?

Find the CPI.

$$\text{CPI} = (\text{Current Cost} \div \text{Cost in 1983}) \times 100$$

$$\text{CPI} = (\$39.99 \times 100) \div \$27.99 = 142.9 \text{ CPI}$$

Find the cost in the base year.

$$\text{Cost in Base Year} = (\text{Current Cost} \div \text{CPI}) \times 100$$

$$(\$34.99 \times 100) \div 142.9 = \$24.49 \text{ cost in base year}$$

### Practice

**Find the CPI, the current cost, or the cost in 1983.**

	Item	CPI	Current Cost	Cost in 1983
1.	Running Shoes		\$ 75.00	\$ 50.00
2.	Movie Ticket		8.00	6.25
3.	Condominium	154.3		125,000.00
4.	Motorcycle	144.7		3,750.00
5.	Vacuum Cleaner	176.9	249.00	
6.	Magazine	168.3	3.95	

- Justine Morocco paid \$1,250 for her wedding gown in 1998 when the CPI was 163. How much would she have paid for the dress if she had gotten married two years earlier when the CPI was 156.9?
- Standardized Test Practice** In 1990, when the CPI was 130.7, a 27-inch TV cost \$299. In 2000, the CPI was 172.3. How much did the TV set cost in the year 2000?  
 A. \$391    B. \$515.18    C. \$228.77    D. \$394.17

23-4

# Allocating Revenue and Expenses and Analyzing a Budget

A **budget** is a plan for using your money to best meet your wants and needs. Your financial plan identifies what sources of revenues (income) you can expect and what amounts are allocated to various departments for expenses. Revenues and expenses are allocated as a percentage of the total income. The actual amount you spend must be compared with your budget allocation.

**Example**

Analyze the budget.

Best Ways Travel wanted to reach \$5,000,000 in revenues last year. It expected to earn 80 percent of that from sales, 10 percent from services, and 10 percent from investments. The budget analysis at the end of last year showed actual revenues of \$3,950,000 from sales, \$425,000 from services, and \$650,000 from investments. Did Best Ways meet its revenue goal?

1. Find the budget allocation.

	<b>Total Income</b>	×	<b>Percent</b>	=	<b>Budget Allocation</b>
Sales:	\$5,000,000	×	80%	=	\$4,000,000
Services:	5,000,000	×	10%	=	500,000
Investments:	5,000,000	×	10%	=	500,000

2. Find the difference.

	<b>Actual Amount</b>	−	<b>Budget Allocation</b>	=	<b>Difference</b>
Sales:	\$3,950,000	−	\$4,000,000	=	−\$50,000
Services:	425,000	−	500,000	=	−\$75,000
Return on investments:	<u>650,000</u>	−	<u>500,000</u>	=	<u>+\$150,000</u>
Total:	\$5,025,000	−	\$5,000,000	=	+\$25,000

Yes, they met their revenue goals.

**Practice**

Find the budget allocation and the difference between the amount budgeted and the actual amount.

	<b>Total Revenue</b>	<b>Expected Percent</b>	<b>Actual Amount</b>	<b>Budget Allocation</b>	<b>Difference</b>
1.	\$100,000	30%	\$35,000	a.	b.
2.	250,000	40%	95,000	a.	b.
3.	475,000	9.5%	45,000	a.	b.
4.	734,385	12%	90,000	a.	b.

5. **Standardized Test Practice** Hitz Music estimated revenues to reach \$950,000 last year. It expected to earn 82 percent from CDs, 12 percent from merchandise, and 6 percent from cassettes. Actual sales figures showed \$780,000 from CDs, \$110,000 from merchandise, and \$55,000 from cassettes. In which areas did Hitz Music go over budget?

- A. CDs only    B. merchandise and cassettes    C. none    D. all three

## 23 Chapter Review

### ***Birthday Puzzle***

Today is Mrs. Hernandez's birthday. When her students asked how old she was, she made the following puzzle. For each step in the puzzle, solve the problem. The final step of the puzzle will reveal the year in which Mrs. Hernandez was born. Subtract that year from the current year to find out Mrs. Hernandez's age.

1. The year that Mrs. Hernandez was born, a loaf of bread cost \$1.50. Today that same loaf of bread costs \$2.25. What is the inflation rate?
2. The year that Mrs. Hernandez was born, a gallon of bottled water cost \$0.90. Using the inflation rate you determined in Problem 1, what is the current price of a gallon of bottled water?
3. Ireland has a population of 3.85 million and a GDP of \$99.3 billion. What is the country's per capita GDP (rounded to the nearest whole dollar)?
4. The year that Mrs. Hernandez was born, the CPI was 67.8 and a new bicycle cost \$45 dollars. Today, the CPI is 180.5. How much does a bicycle cost today?
5. Mrs. Hernandez's husband owns a hardware store. He wants to reach \$100,000 in revenue this year. He expects to earn 76 percent from sales, 10 percent from services, and 14 percent from investments. What is the budget allocation for revenue from investments?
6. Take your answer from Problem 3 and subtract your answer from Problem 5. Divide that answer by the number 6 and round to the nearest whole number. What year was Mrs. Hernandez born?
7. How old is Mrs. Hernandez?

