



# Programming Exercises

## 1. Kilometer Converter

Write a program that asks the user to enter a distance in kilometers, then converts that distance to miles. The conversion formula is as follows:

$$\text{Miles} = \text{Kilometers} \times 0.6214$$

## 2. Sales Tax Program Refactoring

Programming Exercise #6 in Chapter 2 was the Sales Tax program. For that exercise, you were asked to write a program that calculates and displays the county and state sales tax on a purchase. If you have already written that program, redesign it so the subtasks are in functions. If you have not already written that program, write it using functions.

## 3. How Much Insurance?

Many financial experts advise that property owners should insure their homes or buildings for at least 80 percent of the amount it would cost to replace the structure. Write a program that asks the user to enter the replacement cost of a building, then displays the minimum amount of insurance he or she should buy for the property.

## 4. Automobile Costs

Write a program that asks the user to enter the monthly costs for the following expenses incurred from operating his or her automobile: loan payment, insurance, gas, oil, tires, and maintenance. The program should then display the total monthly cost of these expenses, and the total annual cost of these expenses.

## 5. Property Tax

A county collects property taxes on the assessment value of property, which is 60 percent of the property's actual value. For example, if an acre of land is valued at \$10,000, its assessment value is \$6,000. The property tax is then 72¢ for each \$100 of the assessment value. The tax for the acre assessed at \$6,000 will be \$43.20. Write a program that asks for the actual value of a piece of property and displays the assessment value and property tax.

## 6. Calories from Fat and Carbohydrates

A nutritionist who works for a fitness club helps members by evaluating their diets. As part of her evaluation, she asks members for the number of fat grams and carbohydrate grams that they consumed in a day. Then, she calculates the number of calories that result from the fat, using the following formula:

$$\text{calories from fat} = \text{fat grams} \times 9$$

Next, she calculates the number of calories that result from the carbohydrates, using the following formula:

$$\text{calories from carbs} = \text{carb grams} \times 4$$

The nutritionist asks you to write a program that will make these calculations.