# CIS 251 • C++ Programming
# Project 1: Functions

One kilometer is equal to 0.6213712 miles. Write a program in which the user enters the number of kilometers an object is to travel and the object's speed in miles per hour; the program should then display the number of hours (to the nearest hundredth of an hour) required for the object to travel that distance. Your program should allow the user to repeat this calculation using a loop (either sentinel-controlled or ask-before-iterating). Your program should use a named constant for the number of miles per kilometer; this constant may be declared globally or locally (inside the function that performs the conversion).

**Your program must define and call either one or two functions.** Choose one of the following options:

1. Define two functions in addition to `main()`. Define one function that receives the kilometers, calculating and returning the miles; and a second function that receives the miles and the speed, calculating and returning the number of hours required to travel that distance.
2. Define a single function, in addition to `main()`, that receives the kilometers and the speed, calculating and returning the number of hours required to travel that distance. This function converts the kilometers to miles internally rather than relying on another function.

An example that includes a global constant and two additional functions is shown in Display 4.12 in the textbook.

Use the following test data to test your program:

| Kilometers | Speed |
|---|---|
| 5.0 | 6.5 mph |
| 5.0 | 7.5 mph |
| 48.28 | 55.0 mph |
| 48.28 | 65.0 mph |
| 50.0 | 30.0 mph |

**POINTS:** 50

**BONUS (10 points):** Instead of displaying the time in hours as a decimal value, display the number of hours, minutes, and seconds required as whole numbers. For full bonus credit, make sure that the minutes and seconds are displayed as two-digit numbers (format the output as H:MM:SS).

**No bonus credit will be given unless the standard requirements of the assignment are met! Make sure that you have the basic functionality working regardless of whether or not you are able to complete the bonus portion successfully!**

Your code should include comments at the top listing your name, the course, the project number, and a brief description of the program. It should also include **at least three inline comments** in your code explaining what your code is doing at that given point.

The deadline is posted on Blackboard. **No late work will be accepted! The deadline will be strictly enforced by Blackboard!**

If you need assistance with your project code, e-mail your instructor **at least one day in advance** of the deadline. E-mail messages sent too close to the deadline may not receive a response in adequate time to make corrections to the project.

You may discuss general details of the project with your classmates, but **do not look at or borrow another student's project code!** In addition, **do not post the details of the project or ask for assistance with specifics of this project on any public discussion board, forum, or newsgroup!**