

- f. Save and then build the solution. Execute the program. When prompted for a number, type 5 and press Enter. The Command Prompt window shows that doubling the number 5 results in the number 10. Close the Command Prompt window, then use the File menu to close the solution.
2. In this exercise, you will learn the value of the `RAND_MAX` constant on your computer system.
 - a. Open the Ch9ConE02 Solution (Ch9ConE02 Solution.sln) file, which is contained in the Cpp5\Chap09\Ch9ConE02 Solution folder. The program should display the value of the `RAND_MAX` constant. Complete the program appropriately.
 - b. Save and then build the solution. Execute the program. The value of the `RAND_MAX` constant appears in the Command Prompt window. Close the Command Prompt window, then use the File menu to close the solution.

APPLICATION LESSON

USING VALUE-RETURNING FUNCTIONS IN A C++ PROGRAM

LAB 9.1

LAB 9.1—STOP AND ANALYZE

Study the code shown in Figure 9-26, then answer the questions.

```

1 //Ch9Lab1.cpp
2 //Simulates a number guessing game
3 //Created/revised by <your name> on <current date>
4
5 #include <iostream>
6 #include <ctime>
7
8 using std::cout;
9 using std::cin;
10 using std::endl;

```

Figure 9-26: C++ code for Lab 9.1

```

11
12 int main()
13 {
14     //declare variables
15     int randomNumber = 0;
16     int numberGuess = 0;
17
18     //generate a random number from 1 through 10
19     srand(static_cast<int>(time(0)));
20     randomNumber = 1 + rand() % (10 - 1 + 1);
21
22     //get first number guess from user
23     cout << "Guess a number from 1 through 10: ";
24     cin >> numberGuess;
25
26     while (numberGuess != randomNumber)
27     {
28         cout << "Sorry, guess again: ";
29         cin >> numberGuess;
30     } //end while
31
32     cout << endl << "Yes, the number is "
33         << randomNumber << "." << endl;
34
35     return 0;
36 } //end of main function

```

Figure 9-26: C++ code for Lab 9.1 (Continued)

LAB 9.1 QUESTIONS

1. Is the instruction on Line 6 necessary? Why or why not?
2. What is the purpose of the statement on Line 19?
3. If the `rand()` function on Line 20 returns the number 453, what number will be assigned to the `randomNumber` variable?
4. Open the `Ch9Lab1 Solution (Ch9Lab1 Solution.sln)` file contained in the `Cpp5\Chap09\Ch9Lab1 Solution` folder. The file contains the code shown in Figure 9-26. Build the solution, then execute the program. Enter a number from 1 through 10. If you entered the correct number, the program displays the "Yes, the number is *x*." message, where *x* is the number you entered. If you did not enter the correct number, the program displays the "Sorry, guess again:" message. Continue entering numbers until you guess the correct number. Figure 9-27 shows a sample run of the program.