1.1 List the steps in the general problem-solving strategy described in this section.

1.2 Provide a precise list of instructions for traveling from your school to your home.

1.3 List the steps in the program development cycle.

1.4 What is the significance of the word cycle in the term program development cycle?

1.5 What are the three components that make up the basic structure of most computer programs?

1.6 Write a pair of statements, the first of which is an appropriate prompt to input a temperature in degrees Fahrenheit (use Temperature for the name of the variable) and the second statement should assign the value entered by the user to the variable.

1.7 Suppose a program is to calculate the final (maturity) value of an investment. You will be given the amount invested, the rate of interest, and the length of time that the money is invested.

a. What data must be input to this program?

b. Give reasonable names for each of the input variables.

c. Give Write and Input statements that prompt for and input the data for this problem.

1.8 What (if anything) is wrong with each of the following variable names?

a. Sales Tax

b. 1\_2\_3

c. TheCowJumpedOverTheMoon

d. OneName

e. G

1.9 If the temperature is 95 degrees Fahrenheit, use the formula in this section to find the resulting temperature in degrees Celsius.

1.10 If X = 2 and Y = 3, give the value of each of the following expressions:

a. (2 \* X – 1) ˆ 2 + Y

b. X \* Y + 10 \* X / (7 – Y)

c. (4 + (2 ˆ Y) ) \* (X + 1) / Y

d. (19 % 5) \* Y / X \* 2

1.11 If Number is a variable and has the value 5 before the execution of the following statement: Set Number = Number + 2 what is the value of Number after the execution of this statement?

1.12 If Songs = 100 and DollarPrice = 99.00, write statements that use these variables to produce the following output on the screen:

a. 100 songs will cost $ 99.00

b. The number of songs to be downloaded is 100. The cost for this purchase in dollars is 99.00

1.13 Write a program (like the Music Purchase program of this section) that inputs a temperature in degrees Fahrenheit and outputs the corresponding temperature in degrees Celsius. Use DegreesF and DegreesC for your variable names. (Hint: use the formula given earlier in this section.)

1.14 What is the difference between the Character data type and the String data type?

1.15 What would be the result of the following operation, given that the variables named JackOne and JillTwo are of String type? Set JackOne = "3" Set JillTwo = "5" Write JackOne + JillTwo

1.16 What would be the result of the following operation, given that the variable named JackOne is of String type and JillTwo is of Character type? Set JackOne = "Jackie" Set JillTwo = "J" Write JackOne + JillTwo

1.17 True or False? The + operator is used to mean either addition or concatenation.

1.18 Suppose GetThere and String1 are string variables with String1 = "Step". What would be displayed if the following program were run? Set GetThere = String1 + "-by-" + String1 Write GetThere

1.19 Which of the following is not considered an integer in programming?

a. 6

b. 0

c. –53

d. 2.0

1.20 Which of the following is not a floating point number?

a. 6

b. 0.0

c. –0.53

d. 125,467,987.8792

1.21 Which of the following is not a rational number?

a. 22

b. 567/32

c. 1 /3

d. 7.623623623623623623

1.22 The following data will be used in a program. Create appropriate variable names and declare these variables with the data type needed for their use:

a. the number of batteries needed to operate a flashlight

b. the price of filling up a car’s gas tank

c. the area of a circle, given the radius

1.23 True or False? Declaring a variable as type Float is efficient because the Float data type uses less memory than the Integer type.

1.24 List two possible situations that might use a Boolean variable in a program.

1.25 True or False? George Boole invented the Boolean data type?