**Starting Out With C++: Early Objects, Sixth Edition**

**Solutions to Review Questions**

**Chapter 1**

1. programmed 12. key

2. CPU 13. programmer-defined symbols

3. arithmetic logic unit (ALU) and control unit 14. Operators

4. disk drive 15. Punctuation

5. operating systems and application software 16. syntax

6. instructions 17. variable

7. programming language 18. defined (or declared)

8. Machine language 19. input, processing, output

9. High-level 20. Input

10. Low-level 21. Output

11. portability 22. hierarchy chart

23. Main memory, or RAM, is volatile, which means its contents are erased when power is removed from the computer. Secondary memory, such as a disk or CD, does not lose its contents when power is removed from the computer.

24. An operating system is a set of programs that manages the computer's hardware devices and controls their processes. Application software are programs that users use to solve specific problems or perform general operations.

25. A syntax error is the misuse of a key word, operator, punctuation, or other part of the programming language. A logical error is a mistake that tells the computer to carry out a task incorrectly or to carry out tasks in the wrong order. It causes the program to produce the wrong results.

26. Hierarchy Chart:

Calculate Customer's

Available Credit

Get Inputs

Read Credit Used

Read Max Credit

Calculate and Display Available Credit

27. *Account Balance High Level Pseudocode*

*Have user input starting balance*

*Have user input total deposits*

*Have user input total withdrawals*

*Calculate current balance*

*Display current balance*

*Account Balance Detailed Pseudocode*

*Input startBalance // with prompt*

*Input totalDeposits // with prompt*

*Input totalWithdrawals // with prompt*

*currentBalance = startBalance + totalDeposits - totalWithdrawals*

*Display currentBalance*

28. *Sales Tax High Level Pseudocode*

*Have user input retail price*

*Have user input sales tax rate*

*Calculate tax amount*

*Calculate sales total*

*Display tax amount and sales total*

*Sales Tax Detailed Pseudocode*

*Input retailPrice // with prompt*

*Input salesTaxRate // with prompt*

*taxAmount = retailPrice \* salesTaxRate*

*salesTotal = retailPrice + taxAmount*

*Display taxAmount, salesTotal*

29. 45

30. 7

31. 28

32. 365

33. The error is that the program performs its math operation before the user has entered values for the variables width and length.

34. Some of the questions that should be asked are:

What standard ceiling height should be used, or is this figure to be input?

How many square feet should be subtracted out for windows and doors, or do you also want this information input since it could vary by room?

Are the ceilings also to be painted or just the walls?

How many square feet will 1 gallon of paint cover?

How many coats of paint will you use or should this information be input?