1.4 PROBLEM SOLVING IN CHEMISTRY

Section Review

Objectives

- Identify a general approach to solving a problem
- Describe three steps for solving numeric problems
- Describe two steps for solving conceptual problems

Part A Completion

Use this completion exercise to check your understanding of the concepts and terms that are introduced in this section. Each blank can be completed with a term, short phrase, or number.

Effective problem solving involves developing a ___1___ and

___2___ the plan.

    Your textbook teaches a ___3___ -step approach to numeric

problem solving. Step 1 is to ___4___ the problem. Identify what is

known and what is ___5___ . Then make a ___6___ for getting

from the known to the unknown. Step 2 is to ___7___ . If you have

done a good job of planning, this should be straightforward.

Step 3 is to ___8___ your answer. Does the answer make ___9___ ?

An answer should be expressed in the correct ___10___ and with

the correct number of ___11___ .

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____

Part B True-False

Classify each of these statements as always true, AT; sometimes true, ST; or never true, NT.

_____ 12. All of the information needed to solve a numeric problem will be given in the problem.

_____ 13. Problem solving involves developing a plan.

_____ 14. The first step in solving a numeric problem is to calculate the answer.

_____ 15. If you have a good problem-solving plan, it is not necessary to check your work.

_____ 16. Identifying knowns and unknowns is part of the first problem-solving step.

_____ 17. Analyze and solve are the two steps for solving conceptual problems.

Part C Matching

Match each description in Column B to the correct term in Column A.

	Column A	Column B
_____ **18.**	analyze	**a.** the starting point for solving a problem
_____ **19.**	calculate	**b.** Step 1 in the three-step problem-solving approach
_____ **20.**	evaluate	**c.** what a problem-solving plan is designed to identify
_____ **21.**	known	**d.** Step 3 in the three-step problem-solving approach
_____ **22.**	unknown	**e.** Step 2 in the three-step problem-solving approach

Part D Questions and Problems

Apply the three-step problem-solving approach to the problems below.

23. What is the length, in centimeters, of a 10.0-inch ruler, given that there are 2.54 centimeters per inch?

24. How many miles are there in 5.0 kilometers, given that there are 0.62 miles per kilometer?