CHEMISTRY
The Complete Course

Lesson Three

Quantitative Reasoning in Life and Chemistry, (Part II)

KA8503

Worksheet

Instructors may duplicate the worksheets as needed

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ANSWERS

1. 125 books
2. (5.5 gal)(2 qt/1 gal)(4 cups/1 qt) = 44 cups
3. 250 pages/11 chapters = about 23 pages in chapter 5.
4. 2 days, it should take half as much time with twice as many people.
5. 47 miles can be traveled in 1 hour or it takes 0.02 hours to travel 1 mile.
6. (5 miles)(0.02 hr/1 mile)(60 min/1 hr) (60 s/1 min) = 360 s.
7. 1 pound can be purchased with four dollars or by taking the reciprocal, 0.25 pounds can be purchased with 1 dollar.
8. ($11.50)(0.25 lb/$1) = 2.9 lbs. ($3.99/ 1lb) (5 lbs) = $19.95 so, 19.95 - 11.50 = $8.45 more needed.
9. 38 miles can be traveled on one gallon or by taking the reciprocal, 0.026 gallons are consumed by traveling 1 mile.
10. (1100 miles)(0.026 gal/mile)($1.09/gal) = $31.17.

I. VIDEOTAPE FOLLOW-UP QUESTIONS

I. There are only a handful of important ideas that must be mastered in order to be successful at solving chemistry problems.
   A. You must really try to understand what is meant and represented by the numbers (with accompanying units) stated in the problem.
      1. The "numbers" in a problem are generally of two types, "amounts," and "this per that."
      2. Understanding what is meant by "this per that" is one of the most critical skills to master for success.
   B. Whenever you divide two numbers, you are making the denominator "one," whether you actually do the division on your calculator or not.
   C. When you are presented with a problem, you should try to thoroughly understand what is represented by the numbers in the problem and what the problem is asking before you ever start to try and obtain the answer.

II. Several practice problems can help us grasp the concepts stated above.

III. The problems just illustrated in this lecture incorporated virtually all the quantitative reasoning skills required to solve all but a handful of the chemistry problems you will likely be asked to solve in your chemistry course.

II. SUPPLEMENTARY EXERCISES

1. There are 25 books per shelf in Kelly's office. If there are 5 shelves in the office, how many books are there?

2. If there are 4 cups per quart and 2 quarts per gallon, how many cups of milk are in 5.5 gallons of milk?

3. There are 250 pages in a mystery novel containing 11 chapters. If there is an equal number of pages in each chapter, approximately how many pages are in chapter 5?

4. If it takes 3 people 4 days to paint a house, how many days does it take for 6 people if each person works at the same rate?

5. What is meant by the number 47 miles/hour? How many hours does it take to travel 1 mile?

6. If there are 60 minutes in 1 hour and 60 seconds in 1 minute, how many seconds does it take to travel 5 miles at a rate of 47 miles/hour?

7. What is meant by the number $4/lb? How many pounds can be purchased for $1?

8. Jason went to the store with $11.50 in his pocket in order to buy some deli meat. How much sliced turkey could he buy at $3.99/lb? If he needed 5 lbs of turkey, how much more money would he need?

9. What is meant by the number 38 miles/gallon? How many gallons does it take to travel 1 mile?

10. If fuel costs $1.09/gallon and the vehicle can go 38 miles/gallon, how much does it cost to travel 1100 miles?