In each of the word problems 1-15 use the five step procedure to solve each word problem:

a) Start by defining your variable often it is the quantity that is requested in the problem.
b) Use tables or diagrams to help you set up an equation to answer the question.
c) Solve the equation found in the previous step.
d) Use your solution to obtain the answer or answers to the question or questions.
e) Check your answer with the original statement of problem and be sure that your answer is reasonable and gives the requested information.

**Coin/Stamp problems**

1. A collection 22 coins has a value of $4.45. The collection contains dimes and quarters. Find the number of quarters in the collection.

2. A coin bank contains 25 coins in nickels, dimes and quarters. There are four times as many dimes as quarters. The value of the coins is $2.05. How many dimes are in the bank?

3. A stamp collector has some 15 cent stamps and some 20 cent stamps. The number of 15 cent stamps is eight less than three time the number of 20 cent stamps. The total value is $4. Find the number of each type of stamp in the collection.

4. An account executive bought 300 stamps for $73.80. The purchase included 15 cent stamps, 20 cent stamps, and 40 cent stamps. The number of 20 cent stamps is four times the number of 15 cent stamps. How many 40 cent stamps were purchased?

**Dry Mixture Problems**

5. A coffee merchant combines coffee costing $5.50 per pound with coffee costing $3.00 per pound. How many pounds of each should be used to make 40 lb of a blend costing $4 per pound?

6. A goldsmith combined pure gold that costs $400 per ounce with an alloy of gold that costs $150 per ounce. How many ounces of each were used to make 50 oz of gold alloy that costs $250 per ounce?

**Uniform Motion Problems**

7. A car traveling 56 mph overtakes a cyclist who, traveling at 14 mph, had a 1.5 h head start. How far from the starting point does the car overtake the cyclist?
8. Two cars are 295 mi apart and traveling toward each other. One car travels 10 mph faster than the other care. The cars meet in 2.5 h. Find the speed of each car.

9. If a parade 2mi long is proceeding at 3 mph, how long will it take a runner, jogging at 6 mph, to travel from the front of the parade to the end of the parade?

Simple Interest Problems

10. An investment club invested $5000 at an annual simple interest rate of 8.4%. How much additional money must be invested at an annual simple interest rate of 10.5% so that the total interest earned will be 9% of the total investment?

11. An investment of $4500 is made at an annual simple interest rate of 4.8%. How much additional money must be invested at an annual simple interest rate of 7% so that the total annual interest earned will be 6% of the total investment?

Liquid Mixture Problems

12. How many quarts of water must be added to 5 qt of an 80% antifreeze solution to make a 50% antifreeze solution?

13. How much water must be evaporated from 8 gal of an 8% salt solution in order to obtain a 12% salt solution?

14. A butcher has some hamburger that is 20% fat and some hamburger that is 12% fat. How many pounds of each should be mixed to make 80 lb of hamburger that is 17% fat?

15. A druggist mixed 100 cc of a 15% alcohol solution with 50 cc of pure alcohol. Find the percent concentration of the resulting mixture. Round to the nearest tenth of a percent.