

## EXTRA PRACTICE — Exercises

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### Unit III – First Degree Relations with Two Placeholders Part F – Problem Solving Using Two Placeholders **Lesson 7 – “Value” or “Mixture” Problems**

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For each of the following story problems, answer the four analysis questions to find the system of equations needed to solve. Then solve and use common sense to check your answer.

1. One alloy of copper and silver is 25% silver and another is 37.5% silver. How much of each alloy should be used to obtain 200 pounds of an alloy that is 30% silver?
2. A man invests \$5000, part at 5% and the remainder at 4%. If the total annual income from both investments is \$235, what is the amount invested at each rate?
3. A man has twice as many dimes as he has pennies. If he has \$2.94 in all, how many coins of each kind does he have?
4. One videotape and two compact disks cost a total of \$50 at Video Corner. For three videotapes and one compact disk, they charge \$80. What is the price of one compact disk?
5. When Mike bought 5 cans of corn and 2 cans of tuna at his local corner store, it cost \$3.15. The next time he went to the store, he spent \$3.99 for 3 cans of corn and 4 cans of tuna. What is the cost of a can of corn?
6. Donnie works at a machine shop where there are two large containers each of which is filled with a mixture of oil and gasoline. One container is 3% oil and the other is 6% oil. Donnie’s boss has requested that he mix these together to get 12 quarts of a mixture that is 5% oil. How many quarts of each is needed to satisfy this request?
7. While reviewing papers from an old estate, an attorney found \$800 more invested at 4% than was invested at 3% in two old insurance policies. If the total annual income from the two investments was \$130, how much was invested at each rate of interest?
8. Memorial Hospital has available large amounts of two concentrations of saline solution. One is 5% saline and the other is 10% saline. A doctor has requested 800 milliliters of a 7% saline solution. How much of each is needed?
9. At Clucker’s Chicken Restaurant, a bucket of 4 pieces of dark meat, and 5 pieces of white meat costs \$7.05. A bucket of 3 pieces of dark meat and 8 pieces of white meat costs \$8.90. What is the cost of a piece of white meat?
10. Samantha bought 4 adult tickets and 3 children tickets to the Farmland Petting Zoo for \$85. If she had bought 1 adult ticket and 5 children tickets, it would have cost her \$51. What is the cost of a child’s ticket?

# EXTRA PRACTICE — Answer Key

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For each of the following story problems, answer the four analysis questions to find the system of equations needed to solve. Then solve and use common sense to check your answer.

1. The mixture will require 120 lbs. of A and 80 lbs of B.
2. \$3500 was invested at 5% and \$1500 was invested at 4%.
3. The number of pennies is 14 and the number of dimes is 28.
4. CD's sell for \$14 and videos sell for \$22.
5. One can of corn is \$.33
6. 4 quarts of the 3% mixture and 8 quarts of the 6% mixture are needed.
7. \$2200 was invested at 4% and \$1400 was invested at 3%.
8. The new mixture will require 480 milliliters of 5% solution and 320 milliliters of 10% solution.
9. A piece of white meat costs \$.85.
10. A children's ticket is \$7.00.