Section 5.6 Equations Containing Decimals

1. Solving Equations That Contain Decimals: Use the rules for solving equations along with the rules for adding, subtracting, multiplying and dividing decimals to solve equations that contain decimals.

Example 1: Solve each of the following.

a. $x+7.1=5.2$

b. $.3y=.273$

c. $6n+0.88=2n-0.77$

2. Applied Problems: The two types of applied problems covered in this section include the service charge type and the coin type. You may use your calculator to do the calculations on these applied problems.

Service Charge Problems: The formula for the cost of service is given by:

Total service charge = (per visit charge)(no. of visits) + (per hour charge)(no. of hours)

When solving these problems, each of the steps below is worth points, so be sure to show all of the steps.

- Write a statement telling what quantity your variable(s) represent.
- Write an equation that describes the situation given in the problem. Plug in any known values.
- Solve the equation, showing steps.
- Write your solution in English words.

Example 2: A cable company charges $32.50 for a service charge, then $35.25 for each hour it takes their technician to make the repair. If your total bill is $173.50, how many hours did it take the technician to fix your cable?

Note: Portions of this document are excerpted from the textbook *Prealgebra,* 7th ed. by Charles McKeague

Coin Problems: To solve a coin problem, set up a chart listing the types of coins in the rows and the number of coins, the value of one coin, and the total value of each type of coin in the columns.

- Identify the quantity your variable(s) represents by putting the variable in the box that describes the quantity.
- Fill in all of the other boxes using known information and your variable.
- Write an equation that describes the situation given in the problem.
- Solve the equation, showing steps.
- Write your solution in English words

Example 3: A collection of dimes and quarters has a total value of $95.20. If there are three times as many quarters as dimes, how many of each coin is in the collection?

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Practice Problems:

a. Solve: $\frac{1}{2}x - 3.78 = 2.52$

b. A car rental company charges $52 per day and $0.43 per mile for a rental car. If the rental charge was $389.03 for a four-day rental, how many miles was the car driven?

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c. A collection of nickels and quarters has a total value of $17.80. If there are ten more quarters than nickels, how many of each coin is in the collection?

Answers to Practice Problems:
a. {12.6}; b. 421 miles; c. There are 61 quarters and 51 nickels.

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