Name: Date: Period:

Consider this problem: Grace has 7 more five-dollar bills than ten-dollar bills. The value of the five-dollar bills equals the value of the ten-dollar bills. How many five-dollar bills and ten-dollar bills does she have?

Value problems

Value problems are ones where each variable has a **value** attached to it. For example, if our variable is the number of nickels in a person's pocket, those nickels would have a value of five cents each. Using a table is helpful when setting up and solving value problems. The basic structure of the table is shown below.

	Number (Let Statements)	Value (each)	Total	Total Distributed
Item1				
Item2				

Use the Distributed column for equation.

List of different items in the problem

This column in the table indicates the **number of each item** described in the problem. These are your Let statements.

This column indicates the value of **each** item.

This column indicates the total value which we calculate by **multiplying the number by the value.**

For example, if we have 7 dimes, each with a value of .10, the total value is $7 \cdot 10 = .70$

	Number (Let Statements)	Value (each)	Total	Total Distributed
Dimes	7	.10	7(.10)	.70

Once the table is filled in, we can easily make equations by adding each column, setting it equal to the total at the bottom of the column. This is shown in the following example.

Example: In a child's bank are coins that are either quarters or dimes. The amount of money in the bank is $2.60. There are five more dimes than quarters. How many coins each does child have?

	Number (Let Statements)	Value (each)	Total	Total Distributed*
Quarter	x	.25	.25(x)	.25x
Dime	x + 5	.10	.10(x + 5)	.10x + .50
				Use this column for your equation

$$.25x + .10x + .50 = 2.60$$
$$.35x + .50 = 2.60$$
$$.35x = 2.10$$
$$x = 6$$

She has 6 quarters and 11 dimes.

Use the table to set up and solve these problems in your notebook.

1. John received change worth $13. He received 10 more dimes than nickels and 22 more quarters than dimes. How many coins of each did he receive?

2. In a collection of dimes and quarters there are 6 more dimes than quarters. If there is $29.65 overall, how many of each are there?

3. A man has a collection of stamps made up of 5 cent stamps and 8 cent stamps. There are three times as many 8 cent stamps as 5 cent stamps. The total value of all the stamps is $3.48. How many of each stamp does he have?

4. A collection of coins, consisting of nickels, dimes, and quarters, has a value of $3.30. If there are three times as many nickels as quarters, and one-half as many dimes as nickels, how many coins of each kind are there?

5. Rory has $3.10 consisting of quarters, dimes, and nickels. He has twice as many quarters as dimes and 3 more dimes than nickels. Find the number of each kind of coin.

6. Julie has some nickels and dimes in her bank that total $4.25. If the number of dimes exceeds 3 times the number of nickels by 4, find the number of each kind of coin.

7. Sebastian has $5.05 in quarters and dimes. The number of quarters exceeds twice the number of dimes by 1. Find the number she has of each kind.