

Problem Solving Part II: Coin Problems

Example 1:

A coin collector has **\$1.55** in dimes and nickels. She has **5** more dimes than nickels. How many dimes does she have?

	# of coins	coin value	total coin value
dimes			
nickels	x		
total	-----	-----	\$1.55

* ---- leave blank, since this value was given, we do not need to fill out the two boxes that are crossed out.

Now that the table is filled out we can write an equation keeping in mind:

$$\left(\begin{array}{c} \text{Total Coin Value} \\ \text{of Dimes} \end{array} \right) + \left(\begin{array}{c} \text{Total Coin Value} \\ \text{of Nickels} \end{array} \right) = \left(\begin{array}{c} \text{Total Coin Value} \\ \text{of Collection} \end{array} \right)$$

So our equation becomes

$$\mathbf{0.10(x + 5) + 0.05x = 1.55}$$

We can clear the decimals by multiplying the entire equation by its LCD.

LCD=100

$$\mathbf{100[0.10(x + 5) + 0.05x] = 100(1.55)}$$

$$\mathbf{10(x + 5) + 5x = 155}$$

$$\mathbf{10x + 50 + 5x = 155}$$

$$\mathbf{15x + 50 = 155}$$

$$\mathbf{\underline{-50 \quad -50}}$$

$$\mathbf{\frac{15x}{15} = \frac{105}{15}}$$

$\mathbf{x = 7}$

Since we let x represent the number of nickels, we need to find out the number of dimes.

$$\begin{aligned} \# \text{ of dimes} &= x + 5 & x &= 7 \\ &= 7 + 5 \\ &= 12 \end{aligned}$$

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Practice Problems

A collection of **15** coins has a value of **\$2.55**. The collection contains dimes and quarters. Find the number of quarters in the collection.

	# of coins	coin value	total coin value
dimes			
quarters			
total		-----	