# Answer on Question #81775 – Math – Algebra

## Question

At the end of her shift a cashier has a total of $ 6.30 in dimes and quarters. There are 7 more dimes than quarters. How many of each of these coins does she have?

## Solution

Let x be the number of dimes and let y be the number of quarters, then

$x = y + 7$

this means the number of dimes is the same as the number of quarters plus 7.

Besides, we have a total of $6.30 dimes and quarters. We know the value of each dime is 0.10 and the value of each quarter is 0.25 so

$0.10x + 0.25y = 6.30$

And now we have the simplest form of linear system:

$$\begin{cases} x = y + 7 \\ 0.10x + 0.25y = 6.30 \end{cases}$$

Let's use the first equation to replace y in the second one

$0.10 * (y + 7) + 0.25y = 6.30$

$0.10y + 0.7 + 0.25 = 6.30$

$0.35y = 5.60$

$y = 16$

Now use the found value of y to substitute it in the first equation

$x = 16 + 7 = 23$

## Answer:

23 dimes and 16 quarters.