Answer on Question #48391 – Math – Algebra

I have a box of nickels and dimes. When I counted the money, I was surprised to see that I have exactly $10. Then it occurred to me that if my nickels were dimes and my dimes were quarters, I would have $21.25. How many dimes and nickels are in my box?

Solution:

Nickle = 5 cents;
Dime = 10 cents;
Quarter = 25 cents;

In your box you have x of dimes and y of nickels. So we can make a system of equations:

$$\begin{cases} 0.1x + 0.05y = 10 \\ 0.1y + 0.25x = 21.25 \end{cases} \Big|^{*2} \Rightarrow \begin{cases} 0.2x + 0.1y = 20 & (1) \\ 0.1y + 0.25x = 21.25 & (2) \end{cases}$$

Now we will do (2) – (1):

$$0.05x = 1.25 \implies x = 25$$

We will put this value in (1):

$$5 + 0.1y = 20 \implies 0.1y = 15 \implies y = 150$$

Answer: You have in the box 150 nickels and 25 dimes.