Answer on Question#37972 – Math – Other

A number consist of two digits whose sum is 10. When 36 is substracted from the number, the digits interchange their places. Find the number.

SOLUTION
Lets digits will be x and y, then number will be $10x + y$.
The second number (after subtraction) will be $10y + x$.
And we know that $x + y = 10$.
So, we have equations:

$$\begin{cases} x + y = 10 \\ (10x + y) - 36 = 10y + x \end{cases}$$

$$\begin{cases} x + y = 10 \\ (10x + y) - 36 = 10y + x \end{cases}$$
$$\begin{cases} x + y = 10 \\ 10x + y - 10y - x = 36 \end{cases}$$
$$\begin{cases} x + y = 10 \\ 9x - 9y = 36 \end{cases}$$
$$\begin{cases} x + y = 10 \\ x - y = 4 \end{cases}$$
$$2x = 14$$
$$x = 7$$
$$y = 10 - 7 = 3$$

So the first number is 73, then the second is 37
73-36=37
3+7=10

ANSWER: 73