

Pair of Linear Equations in Two varibles Ex 3.7 Q3

Answer:

Let the digits at units and tens place of the given number be x and y respectively. Thus, the number is 10y + x.

The sum of the digits of the number is 5. Thus, we have x + y = 5

After interchanging the digits, the number becomes 10x + y.

The number obtained by interchanging the digits is greater by 9 from the original number. Thus, we have

10x + y = 10y + x + 9

 \Rightarrow 10x + y - 10y - x = 9

 $\Rightarrow 9x - 9y = 9$

 $\Rightarrow 9(x-y) = 9$

 $\Rightarrow x - y = \frac{9}{9}$

 $\Rightarrow x - y = 1$

So, we have two equations

x + y = 5

x-y=1

Here x and y are unknowns. We have to solve the above equations for x and y.

Adding the two equations, we have

$$(x+y)+(x-y)=5+1$$

$$\Rightarrow x + y + x - y = 6$$

$$\Rightarrow 2x = 6$$

$$\Rightarrow x = \frac{6}{2}$$

$$\Rightarrow x = 3$$

Substituting the value of x in the first equation, we have

3 + v = 5

 $\Rightarrow v = 5 - 3$

 $\Rightarrow y = 2$

Hence, the number is $10 \times 2 + 3 = \boxed{23}$.

Pair of Linear Equations in Two varibles Ex 3.7 Q4 Answer:

Let the digits at units and tens place of the given number be x and y respectively. Thus, the number is 10v + r

The sum of the digits of the number is 15. Thus, we have x + y = 15

After interchanging the digits, the number becomes 10x + y.

The number obtained by interchanging the digits is exceeding by 9 from the original number. Thus, we have

10x + y = 10y + x + 9

 $\Rightarrow 10x + y - 10y - x = 9$

 $\Rightarrow 9x - 9y = 9$

 \Rightarrow 9(x - y) = 9

 $\Rightarrow x - y = \frac{6}{6}$

 $\Rightarrow x - y = 1$

So, we have two equations

$$x + y = 15$$

$$x - y = 1$$

Here x and y are unknowns. We have to solve the above equations for x and y.

Adding the two equations, we have

$$(x+y)+(x-y)=15+1$$

$$\Rightarrow x + y + x - y = 16$$

$$\Rightarrow 2x = 16$$

$$\Rightarrow x = \frac{16}{2}$$

$$\Rightarrow x = 8$$

Substituting the value of x in the first equation, we have

$$8 + y = 15$$

$$\Rightarrow y = 15 - 8$$

$$\Rightarrow y = 7$$

Hence, the number is $10 \times 7 + 8 = \boxed{78}$

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