



Exercise 3E

Question 12:

Let the ten's digit and unit's digits of required number be x and y respectively.

Required number = $10x + y$

Number obtained on reversing digits = $10y + x$

According to the question:

$$10y + x - (10x + y) = 18$$

$$10y + x - 10x - y = 18$$

$$9y - 9x = 18$$

$$y - x = 2 \text{ ----(2)}$$

Adding (1) and (2), we get

$$2y = 14$$

$$y = 14/2 = 7$$

Putting $y = 7$ in (1), we get

$$x + 7 = 12$$

$$x = 5$$

$$\text{Number} = 10x + y$$

$$= 10 \times 5 + 7$$

$$= 50 + 7$$

$$= 57$$

Hence, the number is 57.

Question 13:

Let the ten's digit and unit's digits of required number be x and y respectively.

Then,

$$x + y = 15 \text{ ---(1)}$$

Required number = $10x + y$

Number obtained by interchanging the digits = $10y + x$

$$10y + x - (10x + y) = 9$$

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

$$9y - 9x = 9$$

$$y - x = 1$$

$$-x + y = 1 \text{ ----(2)}$$

Add (1) and (2), we get

$$2y = 16$$

$$y = 16/2 = 8$$

Putting $y = 8$ in (1), we get

$$x + 8 = 15$$

$$x = 15 - 8 = 7$$

Required number = $10x + y$

$$= 10 \times 7 + 8$$

$$= 70 + 8$$

$$= 78$$

Hence the required number is 78.

Question 14:

Let the ten's and unit's of required number be x and y respectively.

Then, required number = $10x + y$

According to the given question:

$$10x + y = 4(x + y) + 3$$

$$10x + y = 4x + 4y + 3$$

$$6x - 3y = 3$$

$$2x - y = 1 \text{ ---(1)}$$

And

$$10x + y + 18 = 10y + x$$

$$9x - 9y = -18$$

$$9(x - y) = -18$$

$$x - y = -18/9$$

$$x - y = -2 \text{ ---(2)}$$

Subtracting (2) from (1), we get

$$x = 3$$

Putting $x = 3$ in (1), we get

$$2 \times 3 - y = 1$$

$$y = 6 - 1 = 5$$

$$x = 3, y = 5$$

$$\text{Required number} = 10x + y$$

$$= 10 \times 3 + 5$$

$$= 30 + 5$$

$$= 35$$

Hence, required number is 35.

***** END *****