RS Aggrwaal classs 8 solutions chapter 5 Playing With Numbers - 5A

Q1

Answer :

Let the tens place digit be x.

The units place digit is 3.

$\therefore$ Number = $(10x + 3)$ ... (1)

Given:

$7(x + 3) = (10x + 3)$

$7x + 21 = 10x + 3$

$\therefore 10x - 7x = 21 - 3$

$\Rightarrow 3x = 18$

or $x = 6$

Using $x = 6$ in equation (1):

The number is 63.

Q2

Let the tens digit be x.

The digit in the units place is 2x.

Number = 10x + 2x

Given:

$(x + 2x) + 18 = (10x + 2x)$

$\therefore 3x + 18 = 12x$

$12x - 3x = 18$

$9x = 18$

$x = 182 = 2$

The digit in the tens place is 2.

The digit in the units place is twice the digit in the tens place.
The digit in the units place is 4.

Therefore, the number is 24.

Q3

Answer :

Let the tens place digit be a and the units place digit be b.
Then, number is (10a + b).

According to the question:

$$4(a + b) + 3 = (10a + b)$$

$$4a + 4b + 3 = 10a + b$$

$$6a - 3b = 3$$

$$3(2a - b) = 3$$

$$2a - b = 1 \quad \ldots (1)$$

Given:

If 18 is added to the number, its digits are reversed.

The reverse of the number is (10b + a).

$\therefore (10a + b) + 18 = 10b + a$

$10a - a + b - 10b = -18$

$9a - 9b = -18$

$9(a - b) = -18$

$a - b = -2 \quad \ldots (2)$

Subtracting equation (2) from equation (1):

$$
\begin{array}{rcl}
2a - b & = & 1 \\
a - b & = & -2 \\
\hline
- \quad + & & + \\
\hline
a & & = 3
\end{array}
$$

Using $a = 3$ in equation (1):

$2(3) - b = 1$

$6 - b = 1$

$\therefore b = 5$

Number $= 10a+b = 10 \times 3 + 5 = 35$

Q4

Answer :

Let the tens place digit be a and the units place digit be b.
Then, the number is (10a + b).

Given:
a + b = 15 ... (1)

When the digits are interchanged the number will be (10 b + a).
Given:

$$10a + b + 9 = 10b + a$$

$$\therefore 10a - a + b - 10b = -9$$

$$9a - 9b = -9$$

$$a - b = -1 \qquad \ldots (2)$$

Adding equations (1) and (2):

$$a + b = 15$$

$$\underline{a - b = -1}$$

$$2a = 14$$

$$\therefore a = 7$$

Using a = 7 in equation (2):

$$7 - b = -1$$

$$\therefore b = 8$$

Original number = $10a+b = 10 \times 7 + 8 = 78$

Q5

Answer :

Let the tens place digit be 'x' and the units place digit be 'y'.

∴ Number = $(10x + y)$

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

********** END **********