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Chapter-5

Playing with numbers

Exercise 5.1

Q.1 without performing actual addition and division
write the quotient when the sum of 69 and 96
is divided by

(i) 11

(ii) 15

Solution: (i) As we know that when $ab+ba$ is
divided by 11, quotient is $(a+b)$

hence when $69+96$ is divided by 11

$$\begin{aligned}\text{quotient} &= 6+9 \\ &= 15.\end{aligned}$$

(ii) when $ab+ba$ is divided by $(a+b)$ quotient is 11.

$$\text{here } 9+6=15$$

$\therefore 96+69$ divided by $15(9+6)$

$$\text{quotient} = 11$$

Q.2 without performing actual computations, find the
quotient when $94-49$ is divided by

(i) 9

(ii) 5

Solution: (i) As we know that $ab-ba$ is divided by 9,
then quotient is $(a-b)$

$\therefore 94-49$ when divided by 9, we get quotient $(9-4=5)$

(ii) we know that when $ab-ba$ is divided by $a-b$, then quotient is 9

here difference of digits $= 9-4 = 5$

$\therefore$ quotient $= 9$

Q3 If sum of the number 985 and two other nos obtained by arranging the digits of 985 in cyclic order is divided by 111, 22 and 37 respectively. Find the quotient in each case.

Solution: (i) As we know that

$$\begin{aligned} abc + bca + cab &= 111(a+b+c) \\ &= 3 \times 37 \times (a+b+c) \end{aligned}$$

As we know when the sum of three digit numbers in cyclic order is done when divided by 111, the quotient is sum of digits.

$\therefore$ quotient $= 9+8+5 = 22$

when divided by 22

when sum of 3 digits numbers in cyclic order is done and when divided by sum of digits ($9+8+5=22$)

The quotient is 111

hence quotient is 111.

when divided by 37

when the sum of 3 digits numbers in cyclic order is done and then divided by sum of digits

$$\begin{aligned}\text{Then quotient} &= 3(a+b+c) \\ &= 3 \times 22 = 66\end{aligned}$$

Q.4 Find the quotient when the difference of 985 and 958 is divided by 9.

Solution: The difference between the numbers 985 and 958 when divided by 9, we know that when ten's and unit's place is interchanged we get quotient as a difference of unit's and ten's place

$$\therefore \text{Quotient is } 8-5=3$$