ODM EDUCATIONAL GROUP
Changing your Tomorrow

PLAYING WITH NUMBERS

PERIOD 2

SUBJECT : MATHEMATICS
CHAPTER NUMBER: 5
CHAPTER NAME : PLAYING WITH NUMBERS

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Learning outcome

Students will be able to know about some interesting properties of numbers

Previous knowledge:

Reversing the 2 digit numbers and adding them

When a two digit number is reversed and added with the number, the resulting number is perfectly divisible by 11 and the quotient is equal to the sum of the digits

For e.g: The reverse of 29 is 92.

The sum of 29 and 92 = 29 +92 = 121.

On dividing the sum by 11, we get 121/11 = 11 = 9+2.

So, the sum is divisible by 11 and the quotient is equal to the sum of the digits of the number.

Subtraction:

Reversing the 2 digit numbers and Subtracting them

When a two digit number is reversed and the larger number is subtracted from the smaller number, the resulting number is perfectly divisible by 9 and the quotient is equal to the difference of the digits of the number.

For example, the reverse of the number 39 is 93.

Now, 93 > 39.

So, 93 – 39 = 54

On dividing the difference of the two number by 9, we get, 54/9 = 6 = 9−3

So, the difference is divisible by 9 and the quotient is equal to the difference of the digits.

Exercise-5(A)

4) **If a = b, show that abc = bac.**

Sol: abc = 100a + 10b +c = 100a +10a + c= 110a + c (using a = b)

bac = 100b + 10a + c = 100a +10a + c= 110a +c (using a = b)

Hence, abc = bac

6) Show that 527 + 752 + 275 is exactly divisible by 14.

Sol:

Property :

abc = 100a + 106 + c ....(i)

bca = 1006 + 10c + a ....(ii)

and cab = 100c + 10a + b ....(iii)

Adding, (i), (ii) and (iii), we get

abc + bca + cab = 111a + 111b + 111c = 111(a + b + c) = 3 × 37(a + b + c)

Now, let us try this method on

527 + 752 + 275 to check is it exactly divisible by 14

Here, a = 5, 6 = 2, c = 7

527 + 752 + 275 = 3 × 37(5 + 2 + 7) = 3 x 37 x 14

Hence, it shows that 527 + 752 + 275 is exactly divisible by 14

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Exercise-5(A)

7) If $a > c$; show that $abc - cba = 99(a - c)$.

Sol:

Given, $a > c$

To show : $abc - cba = 99(a - c)$

Proof: $abc = 100a + 10b + c$ ....(i)

(By using property 3)

$cba = 100c + 10b + a$ ....(ii)

(By using property 3)

Subtracting, equation (ii) from (i), we get

$abc - cba = 100a + c - 100c - a$

$abc - cba = 99a - 99c$

$abc - cba = 99(a - c)$

Hence proved.

Home assignment

Exercise 5(A) – Q No 5 to 9

AHA

1. Express 3458 in a generalized form.

2. The number 1220 is divided by 13, find the quotient and remainder.

3. What is the least natural number which is larger than 100 and which leaves the remainder, R = 12 when it is divided by 19.

THANKING YOU

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