

PLAYING WITH NUMBERS

PERIOD 6

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

CHANGING YOUR TOMORROW

Learning outcome

1. Students will be able to know about generalized form of numbers (two - digit and three - digit numbers)
2. Students will be able to know about some interesting properties of numbers
3. Cryptarithm sharpens the ability to find solutions to problems
4. Students will be able to understand the tests of divisibility

Recapitulation

4) Find which of the following numbers are divisible by 5 :

(i) 3250 (ii) 5557 (iii) 39255 (iv) 8204

Sol: A number having its unit digit is 5 or 0, is divisible by 5. So, numbers 3250, 39255 are all divisible by 5.

5) Find which of the following numbers are divisible by 10:

(i) 5100 (ii) 4612 (iii) 3400 (iv) 8399

Sol: : A number having its unit digit is 0, is divisible by 10. So, numbers 5100,3400 are all divisible by 10.

For what value of digit x , is :

1) $1x5$ divisible by 3?

Sol: $1x5$ is divisible by 3

$\Rightarrow 1 + x + 5$ is a multiple of 3

$\Rightarrow 6 + x = 0, 3, 6, 9,$

$\Rightarrow x = -6, -3, 0, 3, 6, 9$

Since, x is a digit

$x = 0, 3, 6$ or 9

2) $31x5$ divisible by 3?

Sol: $31x5$ is divisible by 3

$\Rightarrow 3 + 1 + x + 5$ is a multiple of 3

$\Rightarrow 9 + x = 0, 3, 6, 9,$

$\Rightarrow x = -9, -6, -3, 0, 3, 6, 9,$

Since, x is a digit

$x = 0, 3, 6$ or 9

3) $28x6$ a multiple of 3?

Sol:

$28x6$ is a multiple of 3

$2 + 8 + x + 6$ is a multiple of 3

$\Rightarrow 16 + x = 0, 3, 6, 9, 12, 15, 18$

$\Rightarrow x = -18, -5, -2, 0, 2, 5, 8$

Since, x is a digit = 2, 5, 8

5) $3x26$ a multiple of 6?

Sol: $3x26$ is a multiple of 6

$3 + x + 2 + 6$ is a multiple of 3

$\Rightarrow 11 + x = 0, 3, 6, 9, 12, 15, 18, 21,$

$\Rightarrow x = -11, -8, -5, -2, 1, 4, 7, 10, \dots$

Since, x is a digit

$x = 1, 4$ or 7

9) $5x555$ a multiple of 9 ?

Sol: Sum of the digits of $5x555$

$$= 5 + x + 5 + 5 + 5 = 20 + x$$

It is multiple by 9

The sum should be divisible by 9

Value of x will be 7

10) $3x2$ divisible by 11?

Sol: Sum of the digit in even place = x

and sum of the digits in odd place = $3 + 2 = 5$

Difference of the sum of the digits in even places and in odd places = $x - 5$

$3x2$ is a multiple of 11

$$\Rightarrow x - 5 = 0, 11, 22,$$

$$\Rightarrow x = 5, 16, 27,$$

Since, x is a digit $x = 5$

Home assignment

Chapter- 6

AHA

- 1) If 148101B095 is divisible by 33, find the value of B.
- 2) Find the value of k, where 31K2 is divisible by 6.

THANKING YOU
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