

ASSIGNMENT – 5 (MATHEMATICS)

CLASS – 8

Copy the notes in your maths copy and then do the homework in the same copy.

CHAPTER - 5

PLAYING WITH NUMBERS

Divisibility by 4:-

A number is divisible by 4 if the last two digits is divisible by 4.

For example – 5628, 45360, 6785432 etc.

Divisibility by 8:-

A number is divisible by 8 if its last three digits is divisible by 8.

For example – 6800, 657104, 78965328 etc.

For a number in generalized form

Divisibility by 6:-

A number is divisible by 6 if it is divisible by 2 as well as by 3.

For example – 645534 is divisible by 6

Last digit of this number is 4, so it is divisible by 2

Also sum of digits = $6 + 4 + 5 + 5 + 3 + 4 = 27$, which is divisible by 3.

Therefore, 645534 is divisible by 6.

Divisibility by 11:-

A number is divisible by 11 if the difference of the sum of digits at the odd places (starting from unit's place) and the sum of the digits at even places (starting from ten's place) is either 0 or divisible by 11.

For example:-

- 6886011 is divisible by 11.

Sum of digits at odd places = $1 + 0 + 8 + 6 = 15$ and

Sum of digits at even places = $1 + 6 + 8 = 15$.

Their difference = $15 - 15 = 0$

- 4546828341 is divisible by 11

Sum of digits at odd places = $1 + 3 + 2 + 6 + 5 = 17$

Sum of digits at even places = $4 + 8 + 8 + 4 + 4 = 28$

Their difference = $28 - 17 = 11$, which is divisible by 11

Divisibility by 7:-

A number is divisible by 7 if the difference of sums of digits in alternate blocks of three digits from right to left is divisible by 7.

For example –

- 5678234653 is divisible by 7

The sum of the digits in alternate blocks of three digits from right to left are

$653 + 678 = 1331$ and $234 + 5 = 239$

Their difference = $1331 - 239 = 1092$, which is divisible by 7.

EXERCISE 5.3

Q. no.2 – Which of the following numbers are divisible by 2, 4 or 8

i) 67894 ii) 5673244

Solution:- i) The last digit of number 67894 is 4, so it is divisible by 2

94 is the last two digit of this number. 94 is not divisible by 4. So the number is not divisible by 4

894 is the last three digit which is not divisible by 8. So the number is not divisible by 8.

ii) The last digit of number 5673244 is 4, so it is divisible by 2.

The last two digit of this number is 44, which is divisible by 4, so the number 5673244 is divisible by 4

The last three digit of this number i.e. 244 is not divisible by 8. So, the number is not divisible by 8.

Q. no.4 – Which of the following numbers are divisible by 11:

iii) 504670

Solution - iii) sum of digits at odd places = $0 + 6 + 0 = 6$

Sum of digits at even places = $7 + 4 + 5 = 16$

Their difference = $16 - 6 = 10$, which is not divisible by 11

So, the number 504670 is not divisible by 11

Q.no.9 – In each of the following replace * by a digit so that the number formed is divisible by 6:

(ii) 709*94

Solution – we have to check that the given number is divisible by 2 and 3.

The last digit of the given number is 4, so it is divisible by 2.

Sum of the digits = $7 + 0 + 9 + * + 9 + 4 = 29 + *$

So if we will take $* = 1$, then sum of digits = $29 + 1 = 30$, which is divisible by 3

So the number 709194 is divisible by 6

Let $* = 4$, then sum of the digits = $29 + 4 = 33$, which is divisible by 3

Again let $* = 7$, then sum of the digits = $29 + 7 = 36$, which is divisible by 3.

For next we have to take $* = 10$, then the sum = $29 + 10 = 39$, which is divisible by 3 but we cannot take the value 10 because we have to replace * by a digit.

So the value of $* = 1, 4, 7$

And the number will be 709194, 709494, 709794.

Home-work:

Exercise 5.3 question no. 2- (iii), (iv), (v) 4- (i), (ii), (iv), 9- (i), 10- (i), (ii)
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