PLAYING WITH NUMBERS

SUBJECT : MATHEMATICS
CHAPTER NUMBER: 09
CHAPTER NAME :PLAYING WITH NUMBERS
SUBTOPIC : Even and Odd Numbers , Divisibility Rules
PERIOD NO: 3

Learning outcomes

- Students will be able to recognize even and odd numbers.
- Students will be able to apply divisibility rules.

PREVIOUS KNOWLEDGE TEST

1. Without making any actual division, show that each of the following numbers is divisible by 11
(i) 11011
(ii) 110011
(iii) 11000011
2. Without actual division, show that each of the following numbers is divisible by 8
(i) 1608
(ii) 56008
(iii) 240008

Negative numbers and Integers

- Students will Learn divisibility by 2,3,4,6 with the help of a video .
- https://www.youtube.com/watch?v=Df9h5t64NlQ&t=49s(6.33)

Divisibility Rules

A number is divisible by. . .	Divisible	Not Divisible
2 if the last digit is even (0, 2, 4, 6, or 8).	3,978	4,975
3 if the sum of the digits is divisible by 3.	315	139
4 if the last two digits form a number divisible by 4.	8,512	7,518
5 if the last digit is 0 or 5.	14,975	10,978
6 if the number is divisible by both 2 and 3	48	20
9 if the sum of the digits is divisible by 9.	711	93
10 if the last digit is 0.	15,990	10,536

Divisibility Rules

A number is divisible if it can be divided evenly with no remainder

A number is divisible by:

2	if...	The last digit is even
3	if...	The sum of the digits is divisible by 3
4	if...	The last two digits form a number that is divisible by 4
5	if...	The last digit is a 5 or 0
6	if...	The number is divisible by both 2 and 3
7	if...	You can double the last digit and subtract it from the rest of the number. The number should be divisible by 7 with no remainder
8	if...	The last three digits form a number that is divisible by 8
9	if...	The sum of all the digits is divisible by 9
10	if...	The number ends in 0

1. Find which of the following numbers are divisible by 2:

(i) 352   **(ii) 523**

(iii) 496   **(iv) 649**

Solution:(i) 352

Digit at unit's place = 2

Hence, the number is divisible by 2

(ii) 523

Digit at unit's place = 3

Hence, the number is not divisible by 2

(iii) 496

The given number = 496

Digit at unit's place = 6

Hence, the number is divisible by 2

(iv) 649

The given number = 649

Digit at unit's place = 9

Hence, the number is not divisible by 2

2. Find which of the following number are divisible by 4:

(i) 222   **(ii) 532**

(iii) 678   **(iv) 9232**

Solution:(i) 222

The given number = 222

The number formed by ten's and unit digit is 22, which is not divisible by 4.

Hence, the number is not divisible by 4

Evaluation Question

(ii) The given number = 532

The number formed by ten's and unit digit is 32, which is divisible by 4.

Hence, the number is divisible by 4

(iii) The given number = 678

The number formed by ten's and unit digit is 78, which is not divisible by 4

Hence, the number is not divisible by 4

(iv)The given number = 9232

The number formed by ten's and unit digit is 32, which is divisible by 4

Hence, the number is divisible by 4

3. Find which of the following numbers are divisible by 8:

(i) 324   **(ii) 2536**

(iii) 92760   **(iv) 444320**

Solution:(i) 324

The number formed by hundred's, ten's and unit digit is 324, which is not divisible by 8

Hence, 324 is not divisible by 8

(ii) 2536

The number formed by hundred's, ten's and unit digit is 536, which is divisible by8

Hence, 2536 is divisible by 8

Evaluation Question

iii) 92760

The given number = 92760

The number formed by hundred's, ten's and unit digit is 760, which is divisible by 8

Hence, 92760 is divisible by 8

(iv) 444320

The given number = 444320

The number formed by hundred's, ten's and unit digit is 320, which is divisible by 8

Hence, 444320 is divisible by 8

4. Find which of the following numbers are divisible by 3:

(i) 221   (ii) 543   (iii) 28492   (iv) 92349

Solution:(i) For a number to be divisible by 3, sum of digits must be divisible by 3

Sum of digits = 2 + 2 + 1 = 5

Since 5 is not divisible by 3

Hence, 221 is not divisible by 3

ii)For a number to be divisible by 3, sum of digits must be divisible by 3

Sum of digits = 5 + 4 + 3 = 12

Since 12 is divisible by 3

Hence, 543 is divisible by 3

Evaluation Question

 (iii) The given number = 28492

For a number to be divisible by 3, sum of digits must be divisible by 3

Sum of digits = 2 + 8 + 4 + 9 + 2 = 25

Since 25 is not divisible by 3

Hence, 28492 is not divisible by 3

(iv)The given number = 92349

For a number to be divisible by 3, sum of digits must be divisible by 3

Sum of digits = 9 + 2 + 3 + 4 + 9 = 27

Since 27 is divisible by 3

Hence, 92349 is divisible by 3

Evaluation Question

5. Find which of the following numbers are divisible by 9:

(i) 1332   (ii) 53247 (iii) 4968 (iv) 200314

Solution:(i)The given number = 1332

For a number to be divisible by 9, sum of digits must be divisible by 9

Sum of digits = 1 + 3 + 3 + 2 = 9

Since 9 is divisible by 9

Hence, 1332 is divisible by 9

(ii)For a number to be divisible by 9, sum of digits must be divisible by 9

Sum of digits = 5 + 3 + 2 + 4 + 7 = 21

Since 21 is not divisible by 9

Hence, 53247 is not divisible by 9

Evaluation Question

iii) The given number = 4968

For a number to be divisible by 9, sum of digits must be divisible by 9

Sum of digits = 4 + 9 + 6 + 8 = 27

Since 27 is divisible by 9

Hence, 4968 is divisible by 9

(iv) The given number = 200314

For a number to be divisible by 9, sum of digits must be divisible by 9

Sum of digits = 2 + 0 + 0 + 3 + 1 + 4 = 10

Since 10 is not divisible by 9

Hence, 200314 is not divisible by 9

6. Find which of the following number are divisible by 6

(i) 324   (ii) 2010   (iii) 33278   (iv) 15505

Solution: A number which is divisible by either 2 and 3 or both then the given number is divisible by 6

(i)The given number = 324

Sum of digits = 3 + 2 + 4 = 9

which is divisible by 3

Therefore, 324 is divisible by 6

(ii) The given number = 2010

Sum of digits = 2 + 0 + 1 + 0 = 3
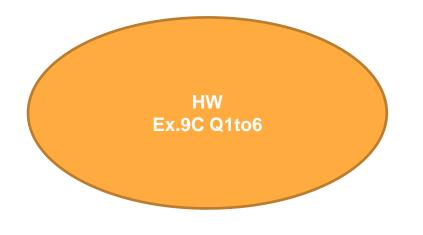
which is divisible by 3

Therefore, 2010 is divisible by 6

Additional Homework

1. **Without making any actual division, show that each of the following numbers is divisible by 11**

(i) 11011   **(ii) 110011**

HW
Ex.9C Q1to6

THANKING YOU
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