



SUBJECT:-MATHEMATICS

CHAPTER:-PLAYING WITH NUMBERS

PART-6

TOPIC: SOME MORE DIVISIBILITY TEST

GUIDELINES:

Dear Students

Kindly refer to the following notes/video links from the Chapter- "PLAYING WITH NUMBERS" SUB TOPIC- "SOME MORE DIVISIBILITY TEST -PART-6" and thereafter do the questions in your Maths notebook.

LINK FOR THE CHAPTER:- <http://ncert.nic.in/textbook/textbook.htm?femh1=3-14>

INTRODUCTION:

Divisibility rules of whole numbers help us to quickly determine if a number can be divided by a given number without doing a long division.

All of you have studied in previous session, the concept of **prime factorisation**.

In this lesson we will also explore divisibility rules for larger numbers.

SUB TOPICS

- CO-PRIME NUMBERS
- SOME MORE DIVISIBILITY TEST

KEY POINTS

Co-prime numbers:

(Refer to link on co-prime numbers :

<https://www.youtube.com/watch?v=wYsh3wkGI0o>)

Any set of numbers which do not have any other common factor other than 1 are called co-prime or relatively prime numbers.

EXAMPLE: 5 and 6 are two consecutive numbers

Factors of 5 = 1, 5

Factors of 6 = 1, 2, 3, 6

This shows that **5 and 6 have no common factor other than 1**. Therefore, they are co-prime numbers.

Properties of co-prime numbers:

- All prime numbers are co-prime to each other.
- Any two consecutive whole numbers are always co-prime.
- Co-prime numbers need not to be prime numbers.

SOME MORE DIVISIBILITY RULES:

(Refer to the link on some more divisibility rules- [https://www.examfear.com/free-video-lesson/Class-6/Maths/Playing-With-Numbers/part26/Maths_Playing_With_Numbers_part_26_\(Addition_division_rules\)_CBSE_Class_6.htm](https://www.examfear.com/free-video-lesson/Class-6/Maths/Playing-With-Numbers/part26/Maths_Playing_With_Numbers_part_26_(Addition_division_rules)_CBSE_Class_6.htm))

- **If a number is divisible by another number, then it is also divisible by each of the factors of that number.**

Example: 18 and 72 are two numbers such that 72 is divisible by 18

$$72 \div 18 = 4$$

Factors of 18 = 1, 2, 3, 6, 9, 18

$$72 \div 1 = 72,$$

$$72 \div 2 = 36,$$

$$72 \div 3 = 24,$$

$$72 \div 6 = 12,$$

$$72 \div 9 = 8,$$

$$72 \div 18 = 4$$

Therefore, 72 is divisible by each of the factors of 18.

- **If a number is divisible by two co-prime numbers, then it is also divisible by their product.**

Example: Let's say 90 is divisible by 5 and 9.

As we know 5 and 9 are co-prime numbers.

So 90 must be divisible by their products.

i.e $5 \times 9 = 45$ and $90 \div 45 = 2$

Therefore, 90 is divisible by product of the co-primes 5 and 9.

- **If two given numbers are divisible by a number, then, their sum is also divisible by that number.**

Example: 21 and 18 are divisible by 3.

$$21 \div 3 = 7,$$

$$18 \div 3 = 6$$

Sum of the two numbers is $21 + 18 = 39$.

$$\text{Also } 39 \div 3 = 13$$

Therefore, if 21 and 18 are divisible by 3, then their sum i.e 39 is also divisible by 3.

- **If two given numbers are divisible by a number, then their difference is also divisible by that number.**

Example:

58 and 54 are divisible by 2.

$$58 \div 2 = 29,$$

$$54 \div 2 = 27.$$

Difference of the two numbers:

i.e

$$58 - 54 = 4 \text{ and}$$

$$4 \div 2 = 2$$

Therefore, if 54 and 58 are divisible by 2, then their difference, i.e., 4 is also divisible by 2.

Question: A number is divisible by both 5 and 12. By which other number will that number be always divisible?

Solution:

The number is divisible by 5 and 12.

Since 5 and 12 are co-prime numbers so the number must be divisible by the product

$$5 \times 12 = 60.$$

So, the given number will always be divisible by 60.

POINTS TO REMEMBER:

- **Any set of numbers which do not have any other common factor other than 1 are called co-prime or relatively prime numbers.**
- **If a number is divisible by another number, then it is also divisible by each of the factors of that number.**
- **If a number is divisible by two co-prime numbers, then it is also divisible by their product.**
- **If two given numbers are divisible by a number, then their difference and sum is also divisible by that number.**

ASSIGNMENT : From NCERT Ex 3.5 (Q3 , Q4 , Q5 ,Q6 ,Q10 ,Q11 and Q12). Do

these questions in Math notebook.

PRACTICE QUESTIONS : Do their answers in practice notebook .

A. State if the given statements are true or false .

- 1) If a given number is divisible by 3, it is also divisible by 9.
- 2) If a given number is divisible by 6, it is also divisible by 3.
- 3) Numbers divisible by 15 are also divisible by 3 and 5.
- 4) If a is a factor of b and c , then it is a factor of $(b - c)$.
- 5) If a number is divisible by 5 and 9, it is always exactly divisible by 90.

B. Do prime factorisation of the following numbers :

- i) 225
- ii) 144
- iii) 540
- iv) 612

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