



**SUBJECT:- VI**

**TOPIC :- PLAYING WITH NUMBERS ( PART - 1 )**

**CHAPTER - 3**

**GUIDELINES**

Dear students

Kindly refer to the following notes/video links from the Chapter- “PLAYING WITH NUMBERS ” and thereafter do the questions in your math notebook.

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

**INTRODUCTION**

You have studied that the numbers 0 , 1 , 2 , 3 , 4 , ... are called whole numbers.

All natural numbers are whole numbers, but 0 is the only whole number which is not a natural number.

**Even and Odd numbers**

Numbers which are exactly divisible by 2 are called even numbers.

For example : 2 , 4 , 6 , 8 , .....and so on .

Numbers which are not divisible by 2 are called odd numbers .

For example : 1 , 3 , 5 , 7 , 9 , 11 , .....and so on .

**Division Algorithm :** Dividend = Divisor x Quotient + Remainder

When a whole number ‘a’ is not completely divisible by another non-zero whole number ‘b’, then there exists a quotient ‘q’ and some remainder ‘r’ such that,

$$a = b \times q + r$$

**SUBTOPICS**

- ❖ Factors
- ❖ Multiples
- ❖ Perfect numbers

**KEY POINTS**

(Refer to the link- <https://www.examfear.com/free-video-lesson/Class-6/Maths/Playing-with-Numbers.htm> for in -depth content of **PLAYING WITH NUMBERS** .

## ❖ Factors

(Refer to the link : <https://www.youtube.com/watch?v=Y7rb6ku0hEM>)

A **factor** of a number is defined as the number which is an exact divisor of that number.

Suppose we want number 12. Think about the numbers you can multiply together to get 12 .

$$3 \times 4 = 12$$

$$2 \times 6 = 12$$

$$1 \times 12 = 12$$

This shows that 1, 2, 3, 4, 6 and 12 are factors of 12.

We are now familiar with the factors of a number:

- (a) The number 1 has only one factor (i.e. itself ).
- (b) There are numbers, having only two factors- 1 and the number itself.  
Such number are 2, 3, 5, 7, 11 etc.
- (c) There are numbers having more than two factors like 4, 6, 8, 9, 10 and so on.

## ❖ Multiples

(Refer to the link-<https://www.youtube.com/watch?v=MbqaCj-tWSM>)

A **Multiple** of a number is a number obtained by multiplying it by a natural number.  
For example : Multiples of 8 are 8, 16, 24, 32, ... and so on.

**If we say that 4 and 5 are the factors of 20 then 20 is the multiple of 4 and 5 both.**

## ❖ Perfect Numbers

If the sum of all the factors of any number is equal to the double of that number then that number is called a **Perfect Number**.

Perfect Number	Factors	Sum of all the factors
6	1, 2, 3, 6	12
28	1, 2, 4, 7, 14, 28	56
496	1, 2, 4, 8, 16, 31, 62, 124, 248, 496	992

Number for which sum of all its factors is equal to twice the number is called a **perfect number**.

EXAMPLE: The numbers 6 and 28 are perfect numbers.

The factors of 6 are 1, 2, 3 and 6.

Also,  $1+2+3+6 = 12 = 2 \times 6$ .

We find that the sum of the factors of 6 is twice the number 6.

All the factors of 28 are 1, 2, 4, 7, 14 and 28.

Adding these we have,  $1 + 2 + 4 + 7 + 14 + 28 = 56 = 2 \times 28$ .

The sum of the factors of 28 is equal to twice the number 28.

### POINTS TO REMEMBER

1. 1 is a factor of every number.
2. Every number is a factor of itself.
3. Every factor of a number is an exact divisor of that number.
4. Every factor is less than or equal to the given number.
5. Number of factors of a given number are finite.
6. Every multiple of a number is greater than or equal to that number.
7. The number of multiples of a given number is infinite.
8. Every number is a multiple of 1 and itself.
9. Every number is a multiple of each of its factors.

### ASSIGNMENT

(From N.C.E.R.T text book, Exercise 3.1 is to be done in Mathematics notebook)

#### QUESTIONS FOR PRACTICE – (To be done in separate maths practice notebook)

1. Write all the factors of - (a) 64 (b) 125
2. Write first five multiples of- (a) 13 (b) 17
3. Write all multiples of 14 between 32 and 78.
4. In each of the following pairs, is the first number a factor of the second number or not ?  
(a) 17, 64 (b) 9, 72
5. A number is divisible by 18. By what other numbers will that number be divisible ?
6. Find a perfect number greater than 10 but less than 40 .