

**CLASS VII
MATHEMATICS
CHAPTER-I
INTEGERS
MODULE-8/8**

In this module we will discuss what we have studied so far in this chapter. We will recall all the important concepts and properties.

1. integers are bigger collection of numbers which is formed by Whole numbers, and their negatives.
2. we have studied about the representation of integers on the number line and their addition and subtraction.
3. We have studied about properties satisfied by addition and subtraction.
 - a) Integers are closed for addition and subtraction both. That is , $a + b$ and $a - b$ again integers. Where a and b are any integers.
 - b) Addition is commutative for integers. i.e $a + b = b + a$ for all integers a and b
 - c) Addition is associative for integers. i.e $(a + b) + c = a + (b + c)$ for all integers a , b , and c
 - d) Integer '0' is the identity under addition . that is $a + 0 = 0 + a = a$ for every integer a
4. We have studied , how integers could be multiplied . the product a positive and a negative integer is negative

where as the product of two negative integers is a positive integer. For Ex. $-2 \times 7 = -14$ and $-3 \times -8 = 24$

5. The product of even number of negative integers is positive , where as the product of odd number of negative integers is negative.

$$\text{Ex } -2 \times -2 \times -2 \times -2 = +16$$

$$-2 \times -2 \times -2 \times -2 \times -2 = -32$$

6. we have studied some properties under multiplication.

a) Integers are closed under multiplication . That is $a \times b$ is an integer for any two integers a and b

b) Multiplication is commutative for integers.

That is $a + b = b + a$, for any two integers a and b

c) the integer 1 is the identity under multiplication. That is

$$1 \times a = a \times 1 = a \text{ for any integer } a$$

d) Multiplication is associative for integers.

$$\text{that is } (a \times b) \times c = a \times (b \times c)$$

7. We have studied about distributive property under multiplication over addition and multiplication over subtraction. That is

$$a \times (b + c) = (a \times b) + (a \times c) \text{ and}$$

$$a \times (b - c) = (a \times b) - (a \times c)$$

- 8 We have learnt about division of integers

a) when a positive integer is divided by a negative integer , the quotient is negative and vice-versa.

$$25 \div (-5) = -5 , \text{ and } (-25) \div 5 = -5$$

b) division of a negative integer by another negative integer gives a positive quotient.

$$(-52) \div (-2) = +26$$

9. For any integer 'a' we have

a) $a \div 0$ is not defined

b) $a \div 1 = a$

10) for any integer 'a' we have

a) $a \div a = 1$

b) $(-a) \div a = -1$

c) $a \div (-a) = -1$

d) $(-a) \div (-a) = 1$

Assignment.

1. find the value.

a) $3 \times (-1)$

b) $(-1) \times 225$

c) $9 \times (-3) \times (-6)$

d) $(-3) \times (-6) \times (-2) \times (-1)$

e) $-120 \times (-11) \times (-10)$

2. Fill in the blanks.

a) $-13 \times \underline{\quad} = 26$

b) $55 \times \underline{\quad} = -55$

c) $\underline{\quad} \times (-8) = -56$

d) $\underline{\quad} \times (-12) = 108$

3. Verify

i) $(18 \times 7) \times (-3) = 18 \times [7 \times (-3)]$

ii) $(-3) \times [(-4) \times (-6)] = [(-3) \times (-4)] \times (-6)$

4. starting from $(-1) \times 3$, write various products showing some

patterns to show $(-1) \times (-3) = 3$

5. A certain freezing process requires that room temperature be lowered from 50°C at the rate of 5°C every hour . what will be the room temperature 10 hours after the process begin.

Ex.5) Suppose we represent the distance above the ground level by +ve integer and below the ground level –ve integer, Then answer the following.

An elevator descends in a mine shaft at the rate of 5m per minute

i) what will be its position after one hour.

ii) If it begins to descends down from 15m above the ground , what is its position after 45minutes

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