ADDITIONAL NOTES

Additive Identity:

The additive identity property says that if you add an integer to **zero** or add **zero** to an integer, then you get the same integer back. The number **Zero** is known as the additive identity.

For example: $(-8) + 0 = -8$

$0 + (-8) = -8$

$0 + 24 = 24$

$24 + 0 = 24$

That means for any integer a,

$$a + 0 = 0 + a = a.$$

Additive Inverse:

Additive Inverse of an integer is a number which is of opposite sign and when added to the integer, gives Zero.

Some examples of additive inverse are as given below:

Integer	Additive Inverse
6	-6
-20	$+20$
$-a$	$+a$
$+b$	$-b$
0	0

'Zero' is the only integer which is its own additive inverse.

Multiplicative Identity:

The multiplicative Identity property states that any time you multiply an integer by '1', the result or product, is that original number.

So, when we multiply '1' with any integer, we get the same integer.

Hence '1' is the multiplicative Identity.

For example:

$5 \times 1 = 5$ $\quad\quad$ $-3 \times 1 = -3$

$1 \times -16 = -16$ $\quad\quad$ $1 \times 20 = 20$.

That means for any integer a,

$$a \times 1 = 1 \times a = a.$$

Multiplicative Inverse:

The reciprocal of a number obtained is such that when it is multiplied with the original number the value equals to identity 1 is called multiplicative inverse.

In other words, it is a method of dividing a number by its own to generate identity 1, such as,

$$a \times \frac{1}{a} = 1$$

Here '$\frac{1}{a}$' is the multiplicative inverse of a.

Some examples of multiplicative inverse are as given below:

$5 \times \boxed{\frac{1}{5}} = 1$, $\quad \frac{3}{4} \times \boxed{\frac{4}{3}} = 1$, $\quad -7 \times \boxed{-\frac{1}{7}} = 1$

Here $\frac{1}{5}$, $\frac{4}{3}$, $-\frac{1}{7}$ are the multiplicative inverse of 5, $\frac{3}{4}$ and -7 respectively.

NOTE: i) $0 \div a = 0$ for all integers a other than Zero.

ii) $a \div 0 =$ Undefined, for all integers a.

ABSOLUTE VALUE of an integer :

The absolute value of an integer is the numerical value without regard to whether the sign is negative or positive.

On a number line it is the distance between the number and Zero.

Example : The absolute value of +24 is 24.

The absolute value of -24 is also 24.