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G.D.GOENKA PUBLIC SCHOOL

Subject: Mathematics (7th)

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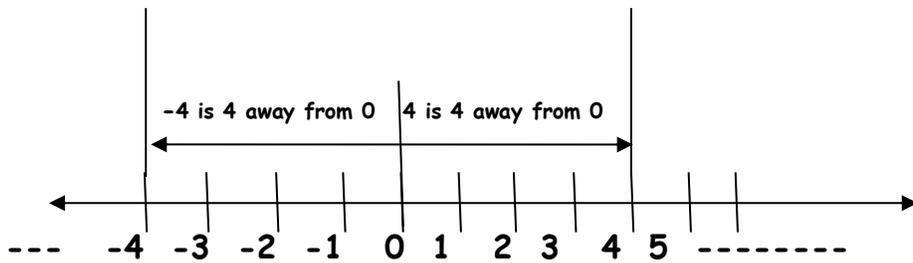
Chapter (Integers)

Integers:

Integers are the numbers which can be positive, negative or zero, but cannot be a fraction. These numbers are used to perform various arithmetic operations, like addition, subtraction, multiplication and division. The examples of integers are, 1, 2, 5, 8, -9, -12, etc.

Concept of Absolute value:

The absolute value or modulus of an integer X , denoted by $|x|$, is the non-negative value of X without regard to its sign. The absolute value of a number may be thought as its distance from zero.



The absolute value of 4 is 4 and absolute value of -4 is 4. Both are 4 away from 0.

Addition and Subtraction of Integers

Addition of integers means there are three possibilities. They are:

- Addition between two positive numbers,
- Addition between two negative numbers; and
- Addition between a positive number and a negative number.

Type of Numbers	Operation	Example	Result
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Positive + Positive	Add	$10 + 15 = 25$	Positive (+)
Negative + Negative	Add	$(-10) + (-15) = -25$	Negative (-)
Positive + Negative	Subtract	$10 + (-15) = -5$	Negative (-) (for this example)
Negative + Positive	Subtract	$(-10) + 15 = 5$	Positive (+) (for this example)

Addition Rules for Integers:

Whenever a positive number and a negative number are added, sign of the greater number is the sign of the result. In above example $10 + (-15) = -5$ and $(-10) + 15 = 5$; here, without sign 15 is greater than 10 hence numbers will be subtracted and answer will give the sign of greater number.

Additive inverse:

Numbers such as 3 and - 3, 2 and - 2, when added to each other give the sum zero.

They are called additive inverse of each other.

Subtraction of Integers:

Subtracting a number from the other is the same as adding its additive inverse

For example,

$$(-7) - (+4) = (-7) + (-4) = -11$$

$$(+8) - (+3) = (+8) + (-3) = +5$$

Exercise 1.1

1. (i) $256 + (-312)$

$$= -56$$

(ii) $-319 + (-136)$

$$= -455$$

(iii) $-127 + 300$

$$= 173$$

$$(iv) -197 + 214$$

$$= 17$$

$$(v) -84 + (-112)$$

$$= -196$$

$$(vi) 215 + (-42)$$

$$= 173$$

$$2. (i) -56 - 32 = -56 + (-32) \text{ (Negative of 32 is } -32)$$

$$= -88$$

$$(ii) -80 - (-73) = -80 + 73$$

$$= -7$$

$$(iii) 72 - (-63) = 72 + 63$$

$$= 135$$

$$(iv) 0 - (-32) = 0 + 32$$

$$= 32$$

$$(v) -23 - (-92) = -23 + 92$$

$$= 69$$

$$(vi) 59 - (-26) = 59 + 26$$

$$= 85$$

Write Q1 and Q2 in your mathematics notebook.

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