



3rd Paper.

Binary operations :

Binary
↓
Two

Let X be a non-empty set. Let x, y be any two elements of X .

Then an operation ' \circ ' is said to be a binary operation on X if

$a \circ b$ is defined $\forall a, b \in X$.

Thus, a binary operation ' \circ ' is a rule for any two elements in the set X .

Example : 1. The operation '+' (addition) on the set of integers is a binary operation, as

$$(a) \quad 2 + 3 = 5, \quad 2, 3 \in \mathbb{I}, \quad 5 \in \mathbb{I}$$

$$(b) \quad -4, 6 \in \mathbb{I} \quad \text{and} \quad -4 + 6 = 2 \in \mathbb{I}$$

$$(c) \quad -10 \in \mathbb{I}, \quad -19 \in \mathbb{I} \quad \text{and} \quad (-10) + (-19) = -29 \in \mathbb{I}$$