

The `reduce()` function is used to apply binary function cumulatively to the elements of an iterable, reducing the iterable to a single final value. The function takes two arguments at a time and combines them until only one value remains.

Syntax: `reduce(function, iterable)`

Mechanism of reduce() for sum op. -

Given list : [47, 11, 42, 13]

Step-by-step working :

- first two elements of list are taken.
i.e. $47 + 11 = 58$.
- Now, the result will be combined with the next element, and so on.
i.e. $58 + 42 = 100$
- The final answer after combining all the elements will be given as an output.
i.e. $100 + 13 = 113$.

Hence, the whole list is converted into a single value through the `reduce()` function.

- It is used to simplify cumulative operation by making code shorter and efficient.
- Used when single final result needed.