

Ans. * To Understand how the `reduce()` function works step by step for the sum operation on the list = `[47, 11, 42, 13]`, Let's break it down:-

List `[47, 11, 42, 13]`

Reduce Function Syntax:

Ans:- from `functools` import `reduce`
`result = reduce(lambda x, y: x+y, [47, 11, 42, 13])`

Internal Mechanism:

1.) Initial Step:-

* The `reduce()` function starts by applying the function to the first two elements in the list.

* In this case, it takes 47 & 11 & add them:- $47 + 11 = 58$

2.) Next Step:-

* The result of the first step 58 is now taken as the first argument (x) & the next element in the list 42 is taken as the second argument (y).

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* It performs the addition:

$$58 + 42 = 100$$

3. Final Step:-

* The result from the previous step 100 is now taken as the first argument, & the next argument.

* It performs the final addition:

$$100 + 13 = 113$$

Step by Step Breakdown:

1. > Step 1: $47 + 11 = 58$

2. > Step 2: $58 + 42 = 100$

3. > Step 3: $100 + 13 = 113$

Final Result:

The sum of the elements in the list $[47, 12, 42, 13]$ using `reduce()` is 113.