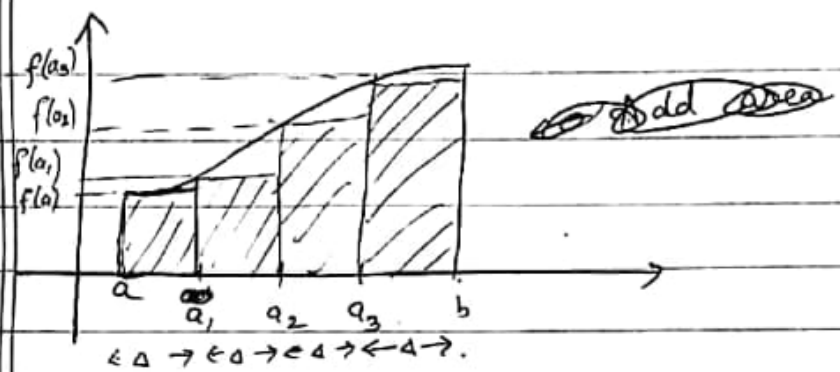
e.g.:



add area

We divide the domain $[a,b]$ into the subintervals $[a,a_1]$, $[a_1,a_2]$, $[a_2,a_3]$, $[a_3,b]$. This is done by first looking at $(b-a)$ and dividing it by the no. of subintervals we want. (in this case, 4).

Let $\Delta = \frac{b-a}{4}$. Then choose $a_1 = a+\Delta$

$a_2 = a+2\Delta$

$a_3 = a+3\Delta$

$b = a+4\Delta$ (automatic).

Here, in this example, I chose the left-end-points of each sub-interval as my representative point to form the rectangles.

Now the sum of the areas of the rectangles is

$$L(f) = f(a)\cdot\Delta + f(a_1)\Delta + f(a_2)\Delta + f(a_3)\Delta$$

$$= \left(f(a) + f(a_1) + f(a_2) + f(a_3)\right)\Delta.$$

This is called the left Riemann sum. [left as we chose the left-end points]

with four subintervals of equal length.