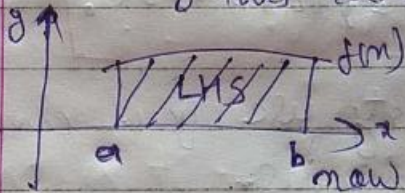


Tips-2

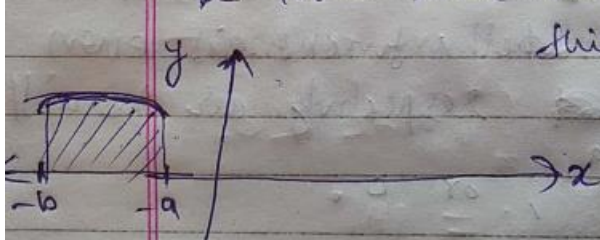
Many time peoples find it difficult to remember the properties. here i can give you one way of good think so that you can remember properly without any difficulties.

consider,  $\int_a^b f(x) dx = \int_a^b f(a+b-x) dx$ .

↳ LHS telling this area



if this is graph of  $f(x)$   
now draw the graph of  $g(x) = f(a+b-x)$ . it will  
be look like this



this is graph of  $g(x) = f(a+b-x)$

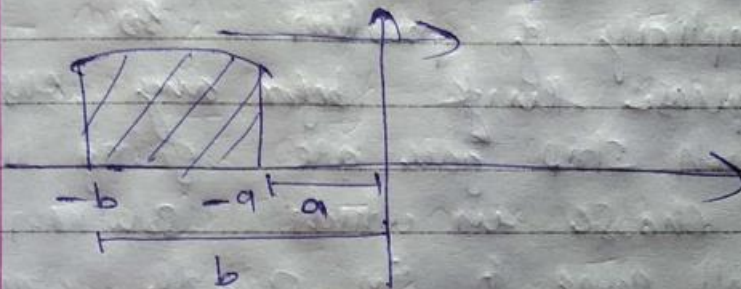
now substituting  $a+b$  from  $x$  in  
 $g(x)$  we will get

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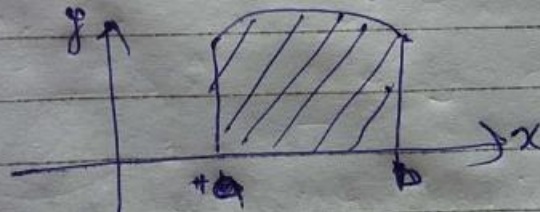
PAGE NO.:

$$\underline{g(x-(a+b)) = f(a+b-x)}$$

So now the graph of functions  $g(x-(a+b))$ , each coordinate will shift to the  $x$ -axis direction by  $(a+b)$ , so



So  $-b$  will shift to  $-b+(a+b) \Rightarrow a$   
and  $-a$  will shift to  $-a+(a+b) = b$   
this implies graph of  $f(a+b-x)$  is



So you can see we are getting Area same but a new equation to solve integrally

also that's why

$$\int_a^b f(x) dx = \int_a^b f(a+b-x) dx.$$