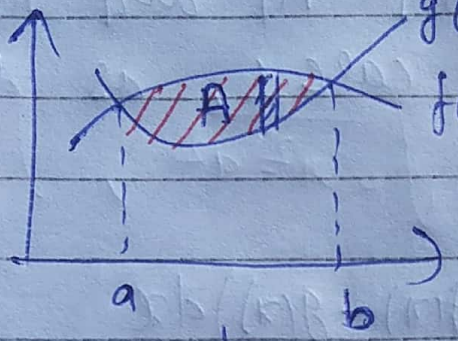
DATE : / /
PAGE NO. :

lecture-4

Definite integration.
concepts and formula to remember.

* For finding area bonded by two curves.
of the form

case1:



$f(x) \geq g(x)$
$\forall\ x \in [a,b]$

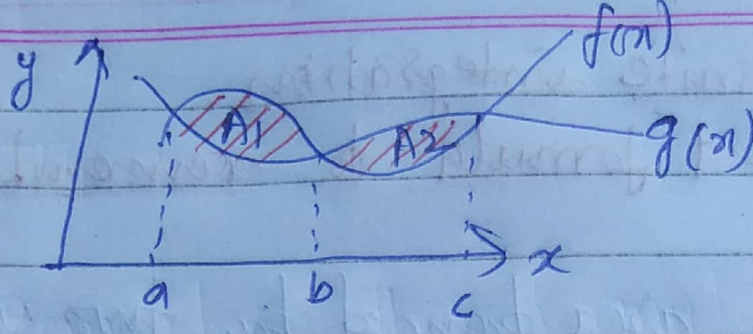
So $\text{Area} = \int_a^b (f(x) - g(x))\,dx$.

intuition beyond this is
$f(x) - g(x)$ is strip length at any x belongs to $[a,b]$ and multiplying (dx) to it give as elementary area equal to

$$dA = (f(x) - g(x))\,dx$$

$$\Rightarrow A = \int_a^b (f(x) - g(x))\,dx.$$

case2:



So total area will be $A = A_1 + A_2$ and for find A_1 and A_2 we can use case 1, as described previously.

So $$A_1 = \int_a^b (f(x) - g(x))\,dx$$

$$A_2 = \int_b^c (g(x) - f(x))\,dx$$

So $$A = \int_a^b (f(x) - g(x))\,dx + \int_b^c (g(x) - f(x))\,dx.$$