

SNS COLLEGE OF ENGINEERING Coimbatore - 641 107



## **TOPIC : 6 – HALF RANGE SINE SERIES**

Half range Sine Series in the interval 
$$(0, \pi)(0, t)$$
  
Formula:  $(0, \pi)$   
 $f(x) = \sum_{n=1}^{\infty} bn Sinnx$   
 $ushere bn = \frac{2}{b-a} \int_{a}^{b} f(x) Sinnzdx$   
Formula:  $(0, d)$   
 $f(x) = \sum_{n=1}^{\infty} bn Sinn\pix$   
 $ushere bn = \frac{2}{b-a} \int_{a}^{b} f(x) Sinn\pix dx$   
 $\int f(x) = x(\pi-x)$  in  $0 \le x \le \pi$ .  
 $\int f(x) = x(\pi-x) = x(\pi-x)$   
 $\int f(x) = x(\pi-x) = \int_{a}^{\infty} f(x) Sinnx dx$   
 $bn = \frac{2}{b-a} \int_{a}^{b} f(x) Sinnx dx$   
 $u = x\pi - x^{2}$   
 $f(x) = \sum_{n=1}^{\infty} bn Sinnx$   
 $bn = \frac{2}{b-a} \int_{a}^{b} f(x) Sinnx dx$   
 $u = x\pi - x^{2}$   
 $f(x) = \sum_{n=1}^{\infty} bn Sinnx$   
 $bn = \frac{2}{\pi} \int_{a}^{\pi} f(x) Sinnx dx$   
 $u = x\pi - x^{2}$   
 $u = -\frac{2\pi}{n} \int_{a}^{\pi} (x\pi - x^{2}) Sinnx dx$   
 $u = \frac{2}{n} \int_{a}^{\pi} (x\pi - x^{2}) Connx + (\pi - 2x) Sinnx$   
 $u = \frac{2}{n^{3}} \int_{a}^{\pi} f(x) \int_{a}^{\pi} f(x) \int_{a}^{\pi} f(x) = \frac{2}{n^{3}} \int_{a}^{\pi} f(x) \int_{a}^{\pi} f(x) = \frac{2}{n^{3}} \int_{a}^{\pi} f(x) \int_{a}^{\pi} f(x) \int_{a}^{\pi} f(x) = \frac{2}{n^{3}} \int_{a}^{\pi} f(x) \int_{a}^{\pi} f(x) \int_{a}^{\pi} f(x) \int_{a}^{\pi} f(x) = \frac{2}{n^{3}} \int_{a}^{\pi} f(x) \int_{a$ 



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$$b_{n} = \frac{g}{1+1} \frac{1}{1+n^{3}} \left[ 1-(-1)^{n} \right]$$

$$= \int_{T} \frac{g}{1+n^{3}} \frac{g}{1+n^{3}} \left[ 1-(-1)^{n} \right]$$

$$= \int_{T} \frac{g}{1+n^{3}} \frac{g}{1+n^{3}} \left[ n \text{ is odd} \right]$$

$$\int_{T} \frac{g}{1+n^{3}} \frac{g}{1+n^{3}} \frac{g}{1+n^{3}} \frac{g}{1+n^{3}} \frac{g}{1+n^{3}}$$

$$\int_{T} \frac{g}{1+n^{3}} = \frac{g}{1+n^{3}} \frac{g}{1+n^{3}} \frac{g}{1+n^{3}} \frac{g}{1+n^{3}}$$

$$T_{n} = \int_{T} \frac{g}{1+n^{3}} \frac{g}{1+n^{3}} \frac{g}{1+n^{3}} \frac{g}{1+n^{3}}$$

$$T_{n} = \int_{T} \frac{g}{1+n^{3}} \frac{g}{1+n^{3}} \frac{g}{1+n^{3}} \frac{g}{1+n^{3}} \frac{g}{1+n^{3}}$$

$$T_{n} = \int_{T} \frac{g}{1+n^{3}} \frac{g}{1+n^{3}} \frac{g}{1+n^{3}} \frac{g}{1+n^{3}} \frac{g}{1+n^{3}}$$

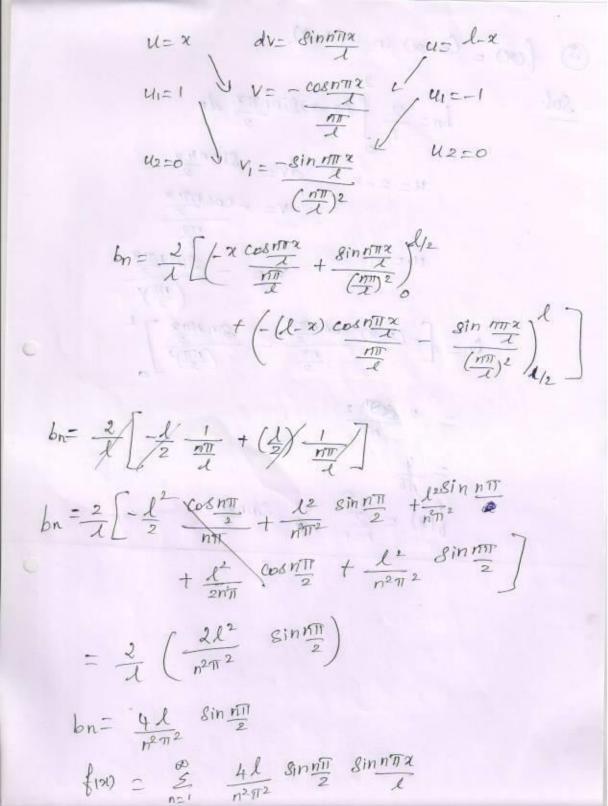
$$T_{n} = \int_{T} \frac{g}{1+n^{3}} \frac{g}{1+n^{3}} \frac{g}{1+n^{3}} \frac{g}{1+n^{3}} \frac{g}{1+n^{3}}$$

$$f_{n} = \int_{T} \frac{g}{1+n^{3}} \frac{g}{$$

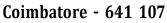


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f(x) = (z-x) in (0,2).  $b_n = \frac{2}{2} \int (2 - x) \sin n\pi x \, dx$ Sol: Sinnha di dv U= 2-2 - cos n71 x  $V_{1} = -\frac{g_{1}}{g_{1}} \frac{2}{2}$ u1=-1 + m  $\frac{(2-\chi)}{\frac{1}{2}} \frac{\cos \frac{n\pi\chi}{2}}{\frac{n\pi}{2}} - \frac{\sin \frac{n\pi\chi}{2}}{\left(\frac{n\pi}{2}\right)^2}$ 2 <u>101. 2</u> <u>nTr</u> Ø 4 Sinnat



