	Wave Exs.
5,2,1	#3 Foul Soln. as
	N(X,t) = \(\big(\big)_{in} coant + \big)_{an seri utt } \) sin ut X
Al	ut (
	M(x,0) = 2 5mi 30 x => 25:30 x = 5 bin 5mi 40 x
,	N=1
	u=3 b ₁₃ =2 all other b ₁₄ 's =0
	$M_{\downarrow}(x,0)=2 \implies 2= \begin{cases} n\pi b_{2n} & \sin \pi x \end{cases}$
	1 N=1
	NTL - Sommaxdy
	$n\pi b_{2n} = \frac{\int_{0}^{1} \sin^{2}n\pi x dx}{\int_{0}^{1} \sin^{2}n\pi x dx}$
	$n_{\text{UM}} = \frac{2}{\pi} \left(\cos \frac{\pi \pi x}{\pi} \right)^{\frac{1}{2}} = -\frac{2}{\pi} \left(\cos \frac{\pi x}{\pi} \right)^{\frac{1}{2}} = -2$
	- 4 COMT 4
	$= > b_{24} = \frac{-4 \cos \pi}{4^2 \pi^2} + \frac{4}{\pi tr^2}$
\bigcirc	6/4 - 4 CONT CONTY SAINTY
	$M(x,+) = 2 \cos 3\pi + \sin 3\pi x + \left(\frac{4}{u\pi^2} - \frac{4}{u^2\pi^2} \cos u\pi\right) \sin u\pi x \sin u\pi t$
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and the property of the state o	
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5.1.2 # 4	Foul Solv: M(x,t) = S(bin connat + bin sainat) sui na x
	http://
	$M(Y,0)=1 \Longrightarrow 1= \underset{n\geq 1}{\overset{\infty}{\sum}} b_{1n} \sin n x$
	W21
	$h_{ij} = -\frac{1}{4\pi} \left[\cos 4\pi x \right] = -\frac{1}{4\pi} \left[\cos 4\pi x \right] = -\frac{1}{4\pi} \left[\cos 4\pi x \right] + \frac{1}{4\pi}$
	$b_{14} = \frac{\int \sin u \alpha x dx}{\int \sin^2 u \alpha x dx}$ $n_{14} = -\frac{1}{4\pi} \cos u \alpha x dx$ $\int \sin^2 u \alpha x dx$
	$=) \left(\frac{2}{\ln 2} - \frac{2}{4\pi} \operatorname{cnuq} \right)$
	Mf(x,0) = X => X = Sunbon C: NAX
	M=X dv= sin uTX
	$= \frac{\int x \sin u \cdot \alpha x \cdot dx}{du = dx} \qquad du = dx \qquad v = -\frac{1}{utt} cu u t t x$
	$= \frac{\int_{0}^{1} u \pi x dx}{\int_{0}^{1} \sin u \pi x dx}$ $= \frac{\int_{0}^{1} x \sin u \pi x dx}{\int_{0}^{1} \sin^{2} u \pi x dx}$ $= \frac{\int_{0}^{1} x \sin u \pi x dx}{\int_{0}^{1} \sin^{2} u \pi x dx}$ $= \frac{\int_{0}^{1} x \sin u \pi x dx}{\int_{0}^{1} \sin^{2} u \pi x dx}$ $= \frac{\int_{0}^{1} x \sin u \pi x dx}{\int_{0}^{1} \sin^{2} u \pi x dx}$
	$nvm - \frac{x}{u\pi} cnu\pi x + \left(\frac{1}{u\pi} cnu\pi x dx = - \frac{1}{u\pi} enu u \right)$
2.2	$= 7 \left(b_{24} - \frac{1}{4^2 \pi^2} \right) $
	00
	$ u(y,t) ^2 = \left(\frac{2}{u\pi} - \frac{2}{u\pi} \cos u\pi\right) \cos u\pi t \sin u\pi x - \left(\frac{2}{u^2\pi^2} \sin u\pi t \sin u\pi x\right)$
	N=1 N=1