27		1123		78		
0	6	5	S	bmi	co.	M
			20	- 1 4 A P	330	

		montagenteenmaneenquar
94.	29 = K 29	
***************************************	∂t ∂x^2	
-		
-	$q_{j}^{(n+1)} - q_{j}^{(n)} = K \int q_{j+1}^{(n+1)} - 2q_{j}^{(n+1)} + q_{j-1}^{(n+1)} \qquad q_{j+1}^{(n)} - 2q_{j}^{(n)} + q_{j-1}^{(n)}$	rės.
2000	$\frac{q_{j}^{2}-q_{j}^{2}}{5t}=\frac{\kappa}{2}\left(\frac{q_{j+1}-2q_{j}^{2}+q_{j-1}}{5x^{2}}+\frac{q_{j+1}-2q_{j}+q_{j-1}}{5x^{2}}+\frac{q_{j+1}-2q_{j}+q_{j-1}}{5x^{2}}\right)$	
5		
	26x²	
	let $q_j = \Lambda^0 i k j d x$	
	Anti eikjóz - Aneikjóz = Kót (Anti ekcjti)óz nti ekcj-i)óz	
10	2522	
-	+ Ae - 2 Ae + Ae kcj-1) dx	
	Divide both sides by Anikijaa	
	$(A-1) = KSt \begin{cases} Ae^{ikSz} - 2A + Ae + e - 2 + e \end{cases}$	
	252	
45	Using the Euler Formula $\cos(k\delta x) = \frac{1}{2}(e^{ik\delta x} + e^{-ik\delta x})$,	
15 15 15 15 15 15 15 15 15 15 15 15 15 1	(A-1) = KSt { 2A Cos (KSx) + 2 Cos (KSx) - 2 (A+1) }	
	2 Sx² (1435
	$= \frac{\kappa dt}{\delta x^2} \left\{ A \cos(k \delta x) + \cos(k \delta x) - (A+1) \right\}$	
	(A-1) = Kot Cos(kox) [A+1] - Kot [A+1]	
20	Sx2 Sx2	
00000	$\frac{\delta x^2}{\delta t} = K \left(\frac{A+1}{A-1} \right) \left[\cos(k\delta x) - 1 \right]$	
	Using the double angle formula,	
25	$\frac{dx^2}{5t} = K\left(\frac{A+1}{A-1}\right)^2 - 2Sin^2\left(\frac{kdx}{2}\right)$	
		,
	$Adx^2 - dx^2 = -2AKdf Sin^2 \left(kdx\right) - 2KSin^2 \left(kdx\right) df$	
		4
	$Adx^{2} + 2Ak Sin^{2} \left(\frac{kdx}{2}\right) St = dx^{2} - 2k Sin^{2} \left(\frac{kdx}{2}\right) St$	
30	(2)	
	$A = \int x^2 - 2K \sin^2\left(\frac{k dx}{2}\right) dt \qquad \Rightarrow \qquad 1 - \frac{2K dt}{\delta x^2} \sin^2\left(\frac{k dx}{2}\right)$ $\int x^2 + 2K \sin^2\left(\frac{k dx}{2}\right) dt \qquad 1 + \frac{2K dt}{\delta x^2} \sin^2\left(\frac{k dx}{2}\right)$	
	$A = \frac{3x - 2k\sin\left(\frac{\pi}{2}\right)}{3x^2}$	

(a) $\frac{d^{2}q}{dx} = \frac{1}{1+1} - \frac{2q_{1} + q_{1-1}}{4x}$ $\frac{dx^{2}}{2\Delta x}$ $\frac{dq}{dx} = \frac{1}{1+1} - \frac{1}{1-7}$ $\frac{dx}{2\Delta x}$ Since $\Delta x = h$ $\frac{1}{1+1} - \frac{1}{1-7}$ $\frac{dx}{2\Delta x}$ $\frac{2h}{2} = \frac{1}{1+1} - \frac{1}{1-7}$ $\frac{dx}{2\Delta x}$ $\frac{2h}{2h} = \frac{2h^{2}}{2h} - \frac{1}{1+1} + \frac{1}{1+1} + \frac{1}{1+1} = 0$ $\frac{h^{2}}{2h} = \frac{2h^{2}}{2h} - \frac{1}{1+1} + $	Q2.	d2q _ sin2x dq + 79 = 0 , - T < x < T with BC = 9 - T) = 0 3 9 / T)	=
$dx^{2} \qquad dq = \prod_{i \neq 1}^{2} - \eta_{i-1}$ $dx \qquad 2 \Delta x$ $Since \Delta x = h,$ $q_{i+1}^{2} - 2\eta_{i} + \eta_{i+1} - s_{i}n^{2}x_{i} + \eta_{i+1} - \eta_{i+1} + \eta_{i+1} = 0$ $h^{2} \qquad 2h$ $2(q_{i+1}^{2} - 2\eta_{i} + \eta_{i+1}^{2}) - h s_{i}n^{2}x_{i}(q_{i+1}^{2} - \eta_{i+1}^{2}) + 2 h h^{2}q_{i} = 0$ $2 + \eta_{i+1}^{2} - h s_{i}n^{2}x_{i} + \eta_{i+1}^{2} - 2 h h^{2}q_{i} - h s_{i}n^{2}x_{i} + \eta_{i+1}^{2} + 2 \eta_{i+1}^{2}$ $q_{i+1}^{2} \left(2 - h s_{i}n^{2}x_{i}\right) = \left(-2 h h^{2} + 4\right) q_{i} + \left(-h s_{i}n^{2}x_{i} - 2\right) q_{i+1}^{2}$ $\left(2 - h s_{i}n^{2}x_{i}\right) = \left(-2 h h^{2} + 4\right) q_{i}^{2} + \left(-h s_{i}n^{2}x_{i} - 2\right) q_{i+1}^{2}$ $\left(2 - h s_{i}n^{2}x_{i}\right) - \frac{1}{2} + 1$	The state of the s)
$dx^{2} \qquad dq = \prod_{i \neq 1}^{2} - \eta_{i-1}$ $dx \qquad 2 \Delta x$ $Since \Delta x = h,$ $q_{i+1}^{2} - 2\eta_{i} + \eta_{i+1} - s_{i}n^{2}x_{i} + \eta_{i+1} - \eta_{i+1} + \eta_{i+1} = 0$ $h^{2} \qquad 2h$ $2(q_{i+1}^{2} - 2\eta_{i} + \eta_{i+1}^{2}) - h s_{i}n^{2}x_{i}(q_{i+1}^{2} - \eta_{i+1}^{2}) + 2 h h^{2}q_{i} = 0$ $2 + \eta_{i+1}^{2} - h s_{i}n^{2}x_{i} + \eta_{i+1}^{2} - 2 h h^{2}q_{i} - h s_{i}n^{2}x_{i} + \eta_{i+1}^{2} + 2 \eta_{i+1}^{2}$ $q_{i+1}^{2} \left(2 - h s_{i}n^{2}x_{i}\right) = \left(-2 h h^{2} + 4\right) q_{i} + \left(-h s_{i}n^{2}x_{i} - 2\right) q_{i+1}^{2}$ $\left(2 - h s_{i}n^{2}x_{i}\right) = \left(-2 h h^{2} + 4\right) q_{i}^{2} + \left(-h s_{i}n^{2}x_{i} - 2\right) q_{i+1}^{2}$ $\left(2 - h s_{i}n^{2}x_{i}\right) - \frac{1}{2} + 1$	-		
$dx^{2} \qquad dq = \prod_{i \neq 1}^{2} - \eta_{i-1}$ $dx \qquad 2 \Delta x$ $Since \Delta x = h,$ $q_{i+1}^{2} - 2\eta_{i} + \eta_{i+1} - s_{i}n^{2}x_{i} + \eta_{i+1} - \eta_{i+1} + \eta_{i+1} = 0$ $h^{2} \qquad 2h$ $2(q_{i+1}^{2} - 2\eta_{i} + \eta_{i+1}^{2}) - h s_{i}n^{2}x_{i}(q_{i+1}^{2} - \eta_{i+1}^{2}) + 2 h h^{2}q_{i} = 0$ $2 + \eta_{i+1}^{2} - h s_{i}n^{2}x_{i} + \eta_{i+1}^{2} - 2 h h^{2}q_{i} - h s_{i}n^{2}x_{i} + \eta_{i+1}^{2} + 2 \eta_{i+1}^{2}$ $q_{i+1}^{2} \left(2 - h s_{i}n^{2}x_{i}\right) = \left(-2 h h^{2} + 4\right) q_{i} + \left(-h s_{i}n^{2}x_{i} - 2\right) q_{i+1}^{2}$ $\left(2 - h s_{i}n^{2}x_{i}\right) = \left(-2 h h^{2} + 4\right) q_{i}^{2} + \left(-h s_{i}n^{2}x_{i} - 2\right) q_{i+1}^{2}$ $\left(2 - h s_{i}n^{2}x_{i}\right) - \frac{1}{2} + 1$	(a)	$d^2q = q_{1+1} - 2q_1 + q_{1-1}$	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	5	The second conference and the second confere	
Since $\Delta x = h$, $q_{1m}^{2} = 2q_{1} + q_{1m} = \sin^{2}x_{1} + 2im^{2} + 2im$	9	$dq = 2i_{t+1} - 2i_{t-1}$	
$q_{111} - 2q_1 + q_{1-1} - Sin^2x_1 + q_{11} - q_{1-1} + q_{1} = 0$ $1^2 - 2q_1 + q_{1-1} - h Sin^2x_1 + q_{1-1} - h Sin^2x_1 + q_{1-1} - h Sin^2x_2 + q_{1-1} + q_{1} - 2q_{1-1}$ $2 + q_{1+1} - h Sin^2x_1 + q_{1+1} = -2\pi h^2 q_1 - h Sin^2x_2 + q_{1-1} + q_{1} - 2q_{1-1}$ $q_{1+1} = (-2\pi h^2 + 4) q_1 + (-h Sin^2x_1 - 2) q_{1-1}$ $q_{1+1} = (-2\pi h^2 + 4) q_1 + (-h Sin^2x_1 - 2) q_{1-1}$ $q_{1+1} = (-2\pi h^2 + 4) q_1 + (-h Sin^2x_1 - 2) q_{1-1}$ $(2 - h Sin^2x_1 - 1) q_2 + q_1 + q_1 = 0$ $h^2 - 2q_1 + q_1 - Sin^2x_1 + q_1 = 0$ $h^2 - 2q_1 + q_1 + q_1 + q_1 + q_1$	-	dx 2AX	
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$		Since $\Delta x = h$, $2h^2$	
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$		91+1-291+91-1 _ Sin2x1 91+1-91-1 + 79: =0	
$2 q_{i+1} - h \sin^{2} x_{i} q_{i+1} = -27h^{2} q_{i} - h \sin^{2} x_{i} q_{i-1} + 4q_{i} - 2q_{i-1}$ $q_{i+1} \left(2 - h \sin^{2} x_{i}\right) = \left(-2\pi h^{2} + 4\right) q_{i} + \left(-h \sin^{2} x_{i} - 2\right) q_{i-1}$ $q_{i+1} = \left(-2\pi h^{2} + 4\right) q_{i} + \left(-h \sin^{2} x_{i} - 2\right) q_{i-1}$ $\left(2 - h \sin^{2} x_{i}\right)$ $\left(3 - h \cos^{2} x_{i}\right)$ $\left(3 - h \cos^{$	10		
$2 q_{i+1} - h \sin^{2} x_{i} q_{i+1} = -27h^{2} q_{i} - h \sin^{2} x_{i} q_{i-1} + 4q_{i} - 2q_{i-1}$ $q_{i+1} \left(2 - h \sin^{2} x_{i}\right) = \left(-2\pi h^{2} + 4\right) q_{i} + \left(-h \sin^{2} x_{i} - 2\right) q_{i-1}$ $q_{i+1} = \left(-2\pi h^{2} + 4\right) q_{i} + \left(-h \sin^{2} x_{i} - 2\right) q_{i-1}$ $\left(2 - h \sin^{2} x_{i}\right)$ $\left(3 - h \cos^{2} x_{i}\right)$ $\left(3 - h \cos^{$		2 (qi+, -29; +9;-1) - h Sin2x; (qi+, -9;-)+27h2q; = 0	
$q_{i+1} \left(2 - h \sin^2 x_i \right) = \left(-2 h h^2 + 4 \right) q_i + \left(-h \sin^2 x_i - 2 \right) q_{i-1}$ $q_{i+1} = \left(-2 h h^2 + 4 \right) q_i + \left(-h \sin^2 x_i - 2 \right) q_{i-1}$ $(2 - h \sin^2 x_i)$ $(3 - h \cos^2 x_i)$ $(4 - h \cos^2 x_i)$ $(5 - h \cos^2 x_i)$ $(7 - h \cos^2 x_i)$ $(8 - h \cos^2 x_i)$ $(8 - h \cos^2 x_i)$ $(8 - h \cos^2 x_i)$ $(9 - h \cos^2 x_i)$ $(9$	-		
$q_{i+1} = (-2\lambda h^{2} + 4) q_{i} + (-h \sin^{2} x_{i} - 2) q_{i-1}$ $(2 - h \sin^{2} x_{i})$ $(3 - h \sin^{2} x_{i})$ $(4 - h \sin^{2} x_{i})$ $(5 - h \sin^{2} x_{i})$ $(5 - h \sin^{2} x_{i})$ $(5 - h \cos^{2} x_{i})$ $(7 - h \cos^{2} x_{i})$ $(8 - h \cos^{2} x_{i})$ $(9 - h \cos^{2} x_{i})$ $(9 - h \cos^{2} x_{i})$ $(1 - h \cos^{2} x_{i})$ $(2 - h \cos^{2} x_{i})$ $(3 - h \cos^{2} x_{i})$ $(4 - h \cos^{2} x_{i})$ $(2 - h \cos^{2} x_{i})$ $(3 - h \cos^{2} x_{i})$ $(4 - h \cos^{2} x_{i})$ $(5 - h \cos^{2} x_{i})$ $(7 - h \cos^{2} x_{i})$ $(8 - h \cos^{2} x_{i})$ $(9 - h \cos^{2} x_{i})$ $(1 - h \cos^{2} x_{i})$ $(2 - h \cos^{2} x_{i})$ $(3 - h \cos^{2} x_{i})$ $(4 - h \cos^{2} x_{i})$ $(5 - h \cos^{2} x_{i})$ $(7 - h \cos^{2} x_{i})$ $(8 - h \cos^{2} x_{i})$ $(9 - h \cos^{2} x_{i})$ $(9 - h \cos^{2} x_{i})$ $(1 - h \cos^{2} x_{i})$ $(1 - h \cos^{2} x_{i})$ $(1 - h \cos^{2} x_{i})$ $(2 - h \cos^{2} x_{i})$ $(3 - h \cos^{2} x_{i})$ $(4 - h \cos^{2} x_{i})$ $(5 - h \cos^{2} x_{i})$ $(7 - h \cos^{2} x_{i})$ $(7 - h \cos^{2} x_{i})$ $(8 - h \cos^{2} x_{i})$ $(9 - h \cos^{2} x_{i})$ $(9 - h \cos^{2} x_{i})$ $(1 - h \cos^{2} x_{i})$ $(1 - h \cos^{2} x_{i})$ $(2 - h \cos^{2} x_{i})$ $(3 - h \cos^{2} x_{i})$ $(4 - h \cos^{2} x_{i})$ $(5 - h \cos^{2} x_{i})$ $(7 - h \cos^{2} x_{i})$ $(8 - h \cos^{2} x_{i})$ $(8 - h \cos^{2} x_{i})$ $(8 - h \cos^{2} x_{i})$ $(9 - h \cos^{2} x_{i})$ $(1 - h \cos^{2} x_{i})$ $(1 - h \cos^{2} x_{i})$ $(1 - h \cos^{2} x_{i})$ $(2 - h \cos^{2} x_{i})$ $(3 - h \cos^{2} x_{i})$ $(4 - h \cos^{2} x_{i})$ $(5 - h \cos^{2} x_{i})$ $(7 - h \cos^{2} x_{i})$ $(8 - h \cos^{2} x_{i})$ $(9 - h \cos^{2} x_{i})$	distance		
(b) for $i = 1$, $q_2 - 2q_1 + q_0 = -3in^2x_1 - 3in^2x_2 - 3in^2x_3 - 3in^2x_4 - 3in^2$			
(b) for $i = 1$, $q_2 - 2q_1 + \chi_0^2$ $- Sin^2 x_1 - \frac{q_2}{q_0} + \lambda q_1 = 0$			
$ \begin{pmatrix} Sin^{2}x_{1} & 1 \\ 2h & h^{2} \end{pmatrix} q_{2} + \begin{pmatrix} z \\ h^{2} \end{pmatrix} q_{3} = 2q_{1} $ for $\bar{i} = z$, $q_{3} - 2q_{2} + q_{3}$, $Sin^{2}x_{1}$, $q_{3} - q_{1}$, $q_{4} - q_{2}$, $q_{5} - q_{1}$, $q_{7} - q_{2}$, $q_{1} - q_{2}$, $q_{2} - q_{3}$, $q_{2} - q_{3}$, $q_{3} + \begin{pmatrix} z \\ h^{2} \end{pmatrix} q_{2} + \begin{pmatrix} Sin^{2}x_{2} & 1 \\ 2h & h^{2} \end{pmatrix} q_{3} + \begin{pmatrix} z \\ h^{2} \end{pmatrix} q_{2} + \begin{pmatrix} -1 & Sin^{2}x_{3} \\ h^{2} & 2h \end{pmatrix} q_{3} = 2q_{3}$ $ \begin{pmatrix} z \\ h^{2} \end{pmatrix} q_{3} + \begin{pmatrix} -1 & Sin^{2}x_{3} \\ h^{2} & 2h \end{pmatrix} q_{2} = 2q_{3}$	15		
$ \begin{pmatrix} Sin^{2}x_{1} & 1 \\ 2h & h^{2} \end{pmatrix} q_{2} + \begin{pmatrix} z \\ h^{2} \end{pmatrix} q_{3} = 2q_{1} $ for $\bar{i} = 2$, $q_{3} - 2q_{2} + q_{1}$, $Sin^{2}x_{1}$, $q_{3} - q_{1}$, $q_{4} - q_{2}$, $q_{5} - q_{1}$, $q_{7} -$	(6)	for i=1 90-29, +92 5102 90-96	
$ \begin{pmatrix} Sin^{2}x_{1} & 1 \\ 2h & h^{2} \end{pmatrix} q_{2} + \begin{pmatrix} z \\ h^{2} \end{pmatrix} q_{3} = 2q_{1} $ for $\bar{i} = 2$, $q_{3} - 2q_{2} + q_{1}$, $Sin^{2}x_{1}$, $q_{3} - q_{1}$, $q_{4} - q_{2}$, $q_{5} - q_{1}$, $q_{7} -$	-	h ² 2h izo izi i=2 is	=3
for $\bar{t} = 2$, $q_3 - 2q_2 + \bar{q}_1$, $-\sin^2 x_1$, $q_3 - q_1$, $+ \lambda q_2 = 0$	0000		
for $\bar{t} = 2$, $q_3 - 2q_2 + \bar{q}_1$, $-\sin^2 x_1$, $q_3 - q_1$, $+ \lambda q_2 = 0$		$\left(\begin{array}{cccccccccccccccccccccccccccccccccccc$	
$ \frac{h^{2}}{\left(\frac{\sin^{2}x_{2}}{2h} - \frac{1}{h^{2}}\right)} q_{3} + \left(\frac{2}{h^{2}}\right) q_{2} + \left(\frac{\sin^{2}x_{2}}{2h} - \frac{1}{h^{2}}\right) q_{1} = \eta q_{2}}{2h} $ for $t = 3$, $\frac{1}{h^{2}} - \frac{2q_{3} + q_{2}}{2q_{3} + q_{2}} - \frac{\sin^{2}x_{3}}{2h} \frac{1}{h^{2} - 2q_{3}} + \frac{1}{h^{2}} - \frac{1}{h^{2}} \frac{1}{2h} \frac{1}{h^{2}} = \eta q_{3}$ $ \frac{2h}{h^{2}} - \frac{1}{h^{2}} - \frac{1}$	20		7
$ \frac{h^{2}}{\left(\frac{\sin^{2}x_{2}}{2h} - \frac{1}{h^{2}}\right)} q_{3} + \left(\frac{2}{h^{2}}\right) q_{2} + \left(\frac{\sin^{2}x_{2}}{2h} - \frac{1}{h^{2}}\right) q_{1} = \eta q_{2}}{2h} $ for $t = 3$, $\frac{1}{h^{2}} - \frac{2q_{3} + q_{2}}{2q_{3} + q_{2}} - \frac{\sin^{2}x_{3}}{2h} \frac{1}{h^{2} - 2q_{3}} + \frac{1}{h^{2}} - \frac{1}{h^{2}} \frac{1}{2h} \frac{1}{h^{2}} = \eta q_{3}$ $ \frac{2h}{h^{2}} - \frac{1}{h^{2}} - \frac{1}$	-	for 5 - 0 9 - 29 + 9 - 2 9 - 9	
$ \frac{\left(\frac{\sin^{2}x_{2}}{2h} + \frac{1}{h^{2}}\right)q_{3} + \left(\frac{2}{h^{2}}\right)q_{2} + \left(\frac{\sin^{2}x_{2} - 1}{2h}\right)q_{1} = \pi q_{2}}{2h} = \pi q_{2} $ for $t = 3$, $\frac{\sqrt{4} - 2q_{3} + q_{2}}{h^{2}} = \frac{\sin^{2}x_{3}}{2h} = \frac{\pi q_{3}}{h^{2}} = \frac{\pi q_{3}}{h^{2}}$ $ \frac{2h}{h^{2}} = \frac{2h}{h^{2}} = \frac{\pi q_{3}}{h^{2}} = \frac{\pi q_{3}}{h^{2}} $			
for $t = 3$, $24 - 293 + 92 = 5 \cdot n^2 \times 3$, $24 - 92 = 793 = 0$			
for $t = 3$, $\frac{\chi_4 - 2q_3 + q_2}{h^2} = \frac{\sin^2 \chi_3}{2h} = \frac{1}{2h}$ $\left(\frac{2}{h^2}\right) \frac{q_3}{h^2} + \left(-\frac{1}{h^2}\right) \frac{\sin^2 \chi_3}{2h} \frac{q_2}{q_2} = \frac{1}{2h}$	-	$\frac{ \sin x_2 }{2h} \frac{1}{h^2} = \frac{1}{q_3} + \frac{ x }{h^2} = \frac{1}{q_2} + \frac{ \sin x_2 }{2h} = \frac{1}{h^2} = \frac{1}{q_3} = \frac{1}{q$	
$\frac{1}{2} \frac{2h}{h^2} \frac{2h}{h^2} \frac{2h}{h^2} \frac{2h}{h^2} \frac{2h}{2h} \frac{2h}{h^2} \frac{2h}{2h} \frac{2h}{h^2} \frac{2h}{h^2}$	25		
$\frac{h^2}{\left(\frac{2}{h^2}\right)} \frac{2h}{\left(\frac{1}{h^2} + \frac{1}{h^2} + \frac{1}{2h}\right)} \frac{2h}{2} = \frac{\lambda q_3}{\lambda q_3}$			
$\left(\begin{array}{c} 2 \\ h^2 \end{array}\right) \begin{array}{c} q_3 + \left(\begin{array}{c} 1 \\ -1 \end{array}\right) \begin{array}{c} \sin^2 x_3 \\ h^2 \end{array} \begin{array}{c} 2 \\ 2h \end{array} \begin{array}{c} 2 \\ 2 \end{array}$			
30	-		
30	,	$\left(\begin{array}{cccccccccccccccccccccccccccccccccccc$	
Forming the matrix	30	he / he sh /	
Forming the matrix		(五) (子) azxx-1-6 (子) azxx-1-6 (子)	
		Forming the matrix	

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***************************************	2 h2	Sin2, 1	0	9		21		
***************************************	h ²	2h h ²	. 918					
***************************************	Sin X2	2 2	Sin2x2 1	92	= 1	92		
***************************************	2h h ²	h ²	zh h²					
5	0	_ I _ Sin2x3	231	93		93		
-		h² 2h	h ²	7.0				
P.	Since f = At2 + !	8+ + C	8 - 3 8 4		* 0	20 on 1	ast pg	
-	y = y +		13- 17					
10		4-		-			4	
10	16200	- []r)(0+1) = (F - 1/2 Pro-	14	+ 7,000		0.20	
	polynomial fit :	Ati- + Bt;- + C	= f;-,					
***************************************		At; + Bt; + 6			5.23 A .	113		
000		At 1+1 + B+2 +						
*	Since to the							
15	Since $t_{i=0}$ $t_{i+1}=h$ and $t_{i-1}=-h$							
	C = f; -, @							
		$Ah^2 + Bh +$		3				
			3:41	3				
	(1) +(2) . 2Ah2	+ 2c = fi-1 +fi+	Ten - "e (Asset) e	E.				
20	0 +B : 2/M	$2Ah^2 = f_{i-1} + f$						
	213474 -	$A = f_{i-1} + f$						
	200	A = 1;-, 7		2.7				
	2 2					-/		
	① - ⑤ :	-2Bh = f:-,-		C	7 - 1 - 2 -			
25	47.192	$B = f_{i-1} - \frac{1}{2h}$		- f;-1				
			2	eh .	s system for	D DIAME.	7	
		c = f,	10.					
	appart of the	7 164	- PASHIT				-	
	Substituting into m	ain equ. above,		•				
		jes .			M = T o	to of	100	
30			· ·	A .	1			
30	y = y = f	i+1 / fi-1 - 2fi + fi+1	t2. + (fi+1-fi-1)) + · +	£ 41	-		

-	$= \frac{f_{i-1} - z f_i + f_{i+1}}{2h^2} \left[\frac{t^3}{3} \right]_{t_i}^{t_{i+1}} + \frac{f_{i+1} - f_{i-1}}{2h} \left[\frac{t^2}{t^2} \right]_{t_i}^{t_{i+1}} + \frac{f_i}{t} \left[\frac{t}{t} \right]_{t_i}^{t_{i+1}}$							
	$2h^2$ $\begin{bmatrix} 3 \end{bmatrix}_{\xi_1}$ $2h \begin{bmatrix} 2 \end{bmatrix}_{\xi_1}$							
	Since titi = + h and ti = 0							
	$= \frac{f_{i-1} - 2f_i + f_{i+1}}{2h^2} + \frac{h^3}{3} + \frac{f_{i+1} - f_{i-1}}{2h} + \frac{h^2}{2} + f_i \cdot h$							
5	2h ² 3 2h 2							
	$= f_{i-1} - 2f_i + f_{i+1} + f_{i+1} - f_{i-1} + f_i + f_i$							
	6 4							
	$= \left(5f_{i+1} + 8f_i - f_{i-1}\right) h$							
	12							
10								
Q5.	$q_{j}^{n+1} = q_{j}^{n} + \frac{K}{2} \frac{\delta t}{\delta x^{2}} \left[(1-\theta) \left(q_{j+1}^{n} - 2q_{j}^{n} + q_{j-1}^{n} \right) + (1+\theta) \left(q_{j+1}^{n+1} - 2q_{j}^{n+1} + q_{j-1}^{n+1} \right) \right]$							
	Rearranging							
	$q_{j}^{n+1} - \frac{K}{2} \frac{dt}{f_{x^{2}}} (q_{j+1}^{n+1} - 2q_{j}^{n+1} + q_{j-1}^{n+1}) (1+\theta) = q_{j}^{n} + \frac{K}{2} \frac{dt}{f_{x^{2}}} (q_{j+1}^{n} - 2q_{j}^{n} + q_{j-1}^{n}) (1-\theta)$							
	let $A = K \delta f$ (1+0) and $B = \frac{K}{2} \delta f$ (1-0)							
15	A second of the							
	$q_{j}^{0+1} - Aq_{j+1}^{0+1} + 2Aq_{j}^{0+1} - Aq_{j-1}^{0+1} = q_{j}^{0} + Bq_{j+1}^{0} - 2Bq_{j}^{0} + Bq_{j-1}^{0}$ $- Aq_{j-1}^{0+1} + (1+2A)q_{j}^{0+1} - Aq_{j+1}^{0+1} = Bq_{j-1}^{0} + (1-2B)q_{j}^{0} + Bq_{j+1}^{0}$							
	$-Aq_{1-1}^{0+1} + (1+2A)q_{1}^{0+1} - Aq_{1+1}^{0+1} = Bq_{1-1}^{0} + (1-2B)q_{1}^{0} + Bq_{1+1}^{0}$							
	for node j=1							
20	$-Aq^{1} + (1+2A)q^{1} - Aq^{1} = 8q^{2} + (1-28)q^{2} + 8q^{2}$							
	due to boundary condition q(0,t) = 20=1							
	$(1+2A)q_1^{n+1} - Aq_2^{n+1} = (1-2B)q_1^n + Bq_2^n + (A+B)q_0$							
-	for node j= +,							
	$-Aq^{+} + (1+2A)q^{0+1} - Aq^{+1} = Bq^{0} + (1-2B)q^{0} + Bq^{0}$							
25	$-Aq_3^{(t)} + (1+2A)q_4^{(t)} - Aq_5^{(t)} = Bq_2^2 + (1-2B)q_4^2 + Bq_5^2$							
25	$-Aq_3^{n+1} + (1+2A)q_4^{n+1} - Aq_5^{n+1} = Bq_3^2 + (1-2B)q_4^2 + Bq_5^2$ Hence all intermediate nodes from $j=2$ to $j=M-1$ have the following form,							
25	$-Aq_3^{ct} + (1+2A)q_4^{ct} - Aq_5^{ct} = Bq_2^2 + (1-2B)q_4^2 + Bq_5^2$ Hence all intermediate nodes from $j=2$ to $j=M-1$ have the following form,							
25	$-Aq_3^{(t)} + (1+2A)q_4^{(t)} - Aq_5^{(t)} = Bq_3^2 + (1-2B)q_4^2 + Bq_5^2$							
25	$-Aq_{3}^{rt} + (1+2A)q_{4}^{rt} - Aq_{5}^{rt} = Bq_{2}^{2} + (1-2B)q_{4}^{2} + Bq_{5}^{2}$ Hence all intermediate nodes from $j=2$ to $j=M-1$ have the following form, $-Aq_{j-1}^{rt} + (1+2A)q_{3}^{rt} - Aq_{j+1}^{rt} = Bq_{j-1}^{r} + (1-2B)q_{3}^{r} + Bq_{j+1}^{r}$							
. 25	$-Aq_{3}^{rt} + (1+2A)q_{4}^{rt} - Aq_{5}^{rt} = Bq_{2}^{2} + (1-2B)q_{4}^{2} + Bq_{5}^{2}$ Hence all intermediate nodes from $j=2$ to $j=M-1$ have the following form, $-Aq_{j-1}^{rt} + (1+2A)q_{3}^{rt} - Aq_{j+1}^{rt} = Bq_{j-1}^{r} + (1-2B)q_{3}^{r} + Bq_{j+1}^{r}$ for node $j=M$							
	$-Aq_{3}^{rt} + (1+2A)q_{4}^{rt} - Aq_{5}^{rt} = Bq_{2}^{2} + (1-2B)q_{4}^{2} + Bq_{5}^{2}$ Hence all intermediate nodes from $j=2$ to $j=M-1$ have the following form, $-Aq_{j-1}^{rt} + (1+2A)q_{3}^{rt} - Aq_{j+1}^{rt} = Bq_{j-1}^{r} + (1-2B)q_{3}^{r} + Bq_{j+1}^{r}$							

we approxim	nate to find M+1 using centre	al finite	e difference metho	4 2
dqm	= 9m+1 - 9m-1			4 - 1
dx	2dx			
Since	given that dalx=10=0			
		9m+	1 - 2m-1 = 0	
•			2dx	io Farl
			9m+1 = 9,	w-1
			8	
- A9 n+1	+ (1+2A)9m - A9m-1 = B	9 +	[1-2B) q + Bq	M ÷ I
- 2Aq 2	$\frac{1}{1} + (1+2A)q_{m}^{+1} = 28q_{m-1}^{n}$	+ (1-	28) 2 m+1	95
- DM				26
Forming to	e matrix		eπ = 2. 8. s	45
1011111	,			>80
15	1+2A -A		A-REALEST CO	
	-A 1+2A -A		- 106 (1460)	- Links
[L] =	., ., .,	5 -		
	-A 1+2A -A			
	-2A 1+2A		State and Control	
20	$1 + K \frac{\partial f}{\partial x^2} (1+\theta) \qquad -\frac{K}{2} \frac{\partial f}{\partial x^2} (1+\theta)$	+0)	77-44	
	$-\frac{\kappa}{2}\frac{\delta^{\dagger}}{\delta x^{2}}(1+\theta) \qquad 1+\kappa\frac{\delta^{\dagger}}{\delta x^{2}}$			bullians off
	2 8x2	"		
	- K %	2(1+8)	1+K 5+ (1+0)	- K St (1+0)
	2 gr		- K of (1+A)	$\frac{2 \int_{\mathcal{A}^2} (1+\theta)}{1 + K \frac{\partial t}{\partial x^2} (1+\theta)}$
25			Sx2	822
	1-28 8	7	•	
	· B 1-2B B			
[R] =	25 8			
[R] =	10 00	В		
30	+8 1-28			
	28	1-28		

		1-K 84 (1-E	9)	K of (1-0)		South the soundary			
		K St (1-8))	1 - K = (1-8)	K of (1-B)	F shadoong ald			
	[R] =								
				K of (1-0)	1-K 25 (1-A)	K St (1-0)			
					K 51/2(1-0)	1-K# (1-0)			
	7X 7								
		(A+B) 9.		K 5x2 9.0			Satur		
	[BC] =	o	-	0					
			of Eve	:					
41		0		0					
10		7-3 - 7-3	RF-11	1111111	FALL STATE	III v make n			
Q2C.	dq =	k	1000	13-4-13-18-1	- 17 (18)	Talkas e			
	dx								
*	$dk = (\sin^2 x) k - \lambda q$ dx								
15	5				4- 4	3 +1			
	boundary conditions are $q\left(-\frac{\pi}{2}\right) = 0$ and $q\left(\frac{\pi}{2}\right) = 0$								
					ACT A-	2)	7. 7		
	The other a	ondition has		Territoria de la compansión de la compan	ACHT A-		soluti		
20			to be	guessed and	this can be of	any value as the			
20	of eigenva	lues itself	to be	guessed and not be any dif	this can be of ferent. The only	any value as the difference will be			
20	of eigenva	lues itself	to be	guessed and not be any dif	this can be of	any value as the difference will be			
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26	of eigenva	de of the co	to be	guessed and not be any dif	this can be of ferent. The only	any value as the difference will be			