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16/EN04/005

$c = \dfrac{2.2 \, cm^3}{hr}$

$\Delta x = 0.3cm \qquad \Delta t = 0.02hr$

$\tau = \dfrac{2.2 \,(0.02)}{(0.3)^2} = 0.4889$

$\tau = 0.49$

$T_{i,jH} - T_{i,j} = 0.49 \left[T_{i+1,j} - 2T_{i,j} + T_{i-1,j} \right]$

$T_{i,jH} = 0.49_{i+1,j} - 0.98T_{i,j} + T_{i,j} + 0.49T_{i-1,j}$

$T_{i,jH} = 0.49T_{i+1,j} + 0.02T_{i,j} + 0.49T_{i-1,j}$

$\Rightarrow T_{i,j+1} = 0.49\,T_{i+1,j} + 0.02T_{i,j} + 0.49\,T_{i-1,j}$

$\qquad = 0.49T_{i+1,j} + 0.0\,(1 - 2\times 0.49)\,T_{i,j} + 0.49T_{i-1,j}$

for $t0 = 0$, $T(x,0) = 3x^2$

1. Where $x = 0 \, cm$

$\qquad T(0,0) = x_0 = 3 \times (0)^2 = 0cm$

2. where $x = 0.3cm$

$\qquad T(0.3,0) = x_1 = 3 \times (0.3)^2 = 0.27cm$

3. where $x = 0.6cm$

$\qquad T(0.6,0) = x_2 = 3 \times (0.6)^2 = 1.08cm$

4. where $x = 0.9cm$

$\qquad T(0.9,0) = x_3 = 3 \times (0.9)^2 = 2.43cm$

5. where $x = 1.2cm$

$\qquad T(1.2,0) = x_4 = 3 \times (1.2)^2 = 4.32\,cm$

$----$ till $x = 6.0cm$

for the second row,

$$T_{i,j+1} = 0.49 T_{i+1,j} + (1-2\times 0.49) T_{i,j} + 0.49 T_{i-1,j}$$

$$\Rightarrow T_{i,j+1} = 0.49 T_{i+1,j} + 0.02 T_{i,j} + 0.49 i-1,j$$

where $i=1$, $j=0$

$$T_{1,1} = 0.49 T_{2,0} + 0.02 T_{1,0} + 0.049 T_{0,0}$$

$$T_{1,1} = 0.49 \times (1.08) + 0.02(0.27) + 0.49(0)$$

$$T_{1,1} = 0.5436$$

where $i=2$, $j=0$

$$T_{2,1} = 0.49 T_{3,0} + 0.02 T_{2,0} + 0.49 T_{1,0}$$

$$T_{2,1} = 0.49(2.43) + 0.02(1.08) + 0.49(0.27)$$

$$T_{2,1} = 1.3446$$

where $i=3$, $j=0$

$$T_{3,1} = 0.49 T_{4,0} + 0.02 T_{4,0} + 0.49 T_{2,0}$$

$$T_{3,1} = 0.49(4.32) + 0.02(2.43) + 0.49(1.08)$$

$$T_{3,1} = 2.6946$$

where $i=4$, $j=0$

$$T_{4,1} = 0.49 T_{5,0} + 0.02 T_{4,0} + 0.49 T_{3,0}$$

$$T_{4,1} = 0.49(6.75) + 0.02(4.32) + 0.49(4.32)$$

$$T_{4,1} = 4.5846$$

where $i=5$, $j=0$

$$T_{5,1} = 0.49 T_{6,0} + 0.02 T_{5,0} + 0.49 T_{4,0}$$

$$T_{5,1} = 0.49(9.72) + 0.02(6.75) + 0.49(4.32)$$

$$T_{5,1} = 7.0146$$

till $T_{20,1}$

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