

HWS

0 1 2 3 4

2

$$L = \begin{bmatrix} 0 & 1.5 & 0.9 & 0.5 & 0.3 \\ 0.8 & 0 & 0 & 0 & 0 \\ 0 & 0.7 & 0 & 0 & 0 \\ 0 & 0 & 0.6 & 0 & 0 \\ 0 & 0 & 0 & 0.6 & 0 \end{bmatrix}$$

~~$P_0 = \begin{bmatrix} 100 & 4 \\ 90 & 3 \\ 80 & 2 \\ 70 & 1 \\ 60 & 0 \end{bmatrix}$~~

$$P_2 = L^2 \cdot P_0$$

$$P_0 = \begin{bmatrix} 100 \\ 90 \\ 80 \\ 70 \\ 60 \end{bmatrix} \begin{matrix} 0 \\ 1 \\ 2 \\ 3 \\ 4 \end{matrix}$$

$$P_2 = \begin{bmatrix} 260 \\ 80 \\ 63 \\ 48 \\ 42 \end{bmatrix}$$

$$P_{23} = 63$$

HW5

$$1) \quad 6 \cdot a(n-1) + a(n+3) + 5 \cdot a(n+1) = 0$$

$$6 \cdot a(n) + a(n+4) + 5 \cdot a(n+2) = 0$$

$$a(n+4) = -5 \cdot a(n+2) - 6 \cdot a(n)$$

n	a
0	0
1	2
2	3
3	4
4	$a(4) = -5 \cdot a(2) - 6 \cdot a(0) = -15$
5	$a(5) = -5 \cdot a(3) - 6 \cdot a(1) = -20 - 12 = -32$

$$a(n+4) = 0 \cdot a(n+3) + 5 \cdot a(n+2) + 0 \cdot a(n+1) - 6 \cdot a(n)$$

$$A = \begin{bmatrix} 0 & 5 & 0 & -6 \\ 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}$$

$$a_0 = \begin{bmatrix} 4 \\ 3 \\ 2 \\ 0 \end{bmatrix}$$

$$a_1 = A^2 \cdot a_0 = a_1 = \begin{bmatrix} -5 & 0 & -6 & 0 \\ 0 & -5 & 0 & -6 \\ 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \end{bmatrix} \cdot \begin{bmatrix} 4 \\ 3 \\ 2 \\ 0 \end{bmatrix} = \begin{bmatrix} -32 \\ -15 \\ 4 \\ 3 \end{bmatrix}$$

$$a(5) = -32$$