

$$\textcircled{1} \quad a(n+3) = -6(n-1) \cdot 5(n+1)$$

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

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

$$\textcircled{5} \quad \begin{bmatrix} 0 & -5 & 0 & -6 \\ 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}$$

$$\textcircled{6} \text{ i. } \begin{bmatrix} 4 \\ 3 \\ 2 \\ 0 \end{bmatrix}$$

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

$$n=0$$

$$n=1$$

$$a(4) = -15$$

$$a(5) = -32$$

$$-5(3) - 6(1)$$

$$\text{ii. } A^2 \times \begin{bmatrix} 4 \\ 3 \\ 2 \\ 0 \end{bmatrix}^2 =$$

$$\begin{bmatrix} -5 & 0 & -6 & 0 \\ 0 & -5 & 0 & -6 \\ 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \end{bmatrix} \times \begin{bmatrix} 4 \\ 3 \\ 2 \\ 0 \end{bmatrix} = \begin{bmatrix} -32 \\ -15 \\ 4 \\ 3 \end{bmatrix}$$

⑦

$$9. \begin{bmatrix} 0 & 1.5 & 0.9 & 0.5 & 0.3 \\ 0.8 & 0 & 0 & 0 & 0 \\ 0 & 0.7 & 0 & 0 & 0 \\ 0 & 0 & 0.6 & 0 & 0 \\ 0 & 0 & 0 & 0.6 & 0 \end{bmatrix}$$

5.

$$A^2 \times \begin{bmatrix} 60 \\ 70 \\ 80 \\ 90 \\ 100 \end{bmatrix}^2 = 37.8$$

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[0,0,0,0.6,0]);
O := Vector([100,90,80,70,60]);
n2 := L^2 . n0;
n2[4];

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

$$n0 := \begin{bmatrix} 100 \\ 90 \\ 80 \\ 70 \\ 60 \end{bmatrix}$$

$$n2 := \begin{bmatrix} 213.300000000000 \\ 208.000000000000 \\ 56.000000000000 \\ 37.800000000000 \\ 28.800000000000 \end{bmatrix}$$

$$37.8000000000000$$