HW4_1

$$A = \begin{bmatrix} -6 \\ 9 \\ 9 \end{bmatrix} \quad B = \begin{bmatrix} 0 & 8 \\ 6 & 6 \\ -6 & 9 \\ 1 & 3 \end{bmatrix} \quad C = \begin{bmatrix} -8 & 7 & 9 \end{bmatrix}$$

$$D = \begin{bmatrix} 4 & 3 & -4 & 4 \\ 5 & -6 & -8 & -3 \\ 5 & 4 & -7 & 9 \\ -2 & -8 & 7 & -8 \end{bmatrix}$$

① $e = C * A - 10$

$e(1,1) = C_{11} * A_{11} + C_{12} * A_{21} + C_{13} * A_{31} - 10$

$e(1,1) = -8 * -6 + 7 * 9 + 9 * 9 - 10$

$e(1,1) = 192 - 10 = 10$

② $f = D^2$

$f(4,2) = D_{41} * D_{12} + D_{42} * D_{22} + D_{43} * D_{32} + D_{44} * D_{42}$

$= -2 * 3 + (-8 * -6) + (7 * 4) + (-2 * -8)$

$= 86$

③ $g = D .* D$

$$g(4,2) = \begin{bmatrix} -2 & -8 & 7 & -8 \end{bmatrix} .* \begin{bmatrix} 3 \\ -6 \\ 4 \\ 8 \end{bmatrix}$$

$$= \begin{bmatrix} -2\times 3 & -8 \times 3 & 7 \times 3 & -8 \times 3 \\ -2 \times -6 & -8 \times -6 & 7 \times -6 & -8 \times -6 \\ -2 \times 4 & -8 \times 4 & 7 \times 4 & -8 \times 4 \\ -2 \times 8 & -8 \times 8 & 7 \times 8 & -8 \times 8 \end{bmatrix}$$

$$= \begin{bmatrix} -6 & -24 & 21 & -24 \\ 12 & 48 & -42 & 48 \\ -8 & -32 & 28 & -32 \\ 16 & 64 & -56 & 64 \end{bmatrix}$$

④ $h = D(2:3, :) * B$

$$h = \begin{bmatrix} 15 & -77 \\ 57 & 28 \end{bmatrix}$$