

$$\begin{aligned} > \mathbf{b} := \langle 1, 0, 0 \rangle; \\ & \qquad \qquad \qquad b := \begin{bmatrix} 1 \\ 0 \\ 0 \end{bmatrix} \end{aligned} \tag{1}$$

$$\begin{aligned} > \mathbf{eq} := c \cdot \langle 2, -1, 0 \rangle + d \cdot \langle -1, 2, -1 \rangle + e \cdot \langle 0, 1, -2 \rangle - \mathbf{b}; \\ & \qquad \qquad \qquad eq := \begin{bmatrix} 2c - d - 1 \\ -c + 2d + e \\ -d - 2e \end{bmatrix} \end{aligned} \tag{2}$$

$$\begin{aligned} > \mathbf{eq1} := \text{convert}(\mathbf{(2)}, \text{'list'}); \\ & \qquad \qquad \qquad eq1 := [2c - d - 1, -c + 2d + e, -d - 2e] \end{aligned} \tag{3}$$

$$\begin{aligned} > \text{solve}(\mathbf{eq1}, \{c, d, e\}); \\ & \qquad \qquad \qquad \left\{ c = \frac{3}{4}, d = \frac{1}{2}, e = -\frac{1}{4} \right\} \end{aligned} \tag{4}$$