

$$Rt. y = b$$

$$\begin{pmatrix} 1 & 0 & 0 \\ 1 & 1 & 0 \\ 0 & -1 & \sqrt{2} \end{pmatrix} \times \begin{pmatrix} y_1 \\ y_2 \\ y_3 \end{pmatrix} = \begin{pmatrix} 2 \\ 1 \\ 5 \end{pmatrix}$$

$$* 1. y_1 = 2 = y_1 = 2$$

$$* 1. y_1 + 1. y_2 = 1 \Rightarrow 1.2 + y_2 = 1 \Rightarrow y_2 = 1 - 2 = -1$$

$$* 0. y_1 - 1. y_2 + \sqrt{2}. y_3 = 5$$

$$(-1).(-1) + \sqrt{2}. y_3 = 5 \Rightarrow y_3 = \frac{5-1}{\sqrt{2}} = \frac{4}{\sqrt{2}} = \frac{4\sqrt{2}}{2} = 2\sqrt{2}$$

$$R x = y$$

$$\begin{pmatrix} 1 & 1 & 0 \\ 0 & 1 & -1 \\ 0 & 0 & \sqrt{2} \end{pmatrix} \times \begin{pmatrix} x_1 \\ x_2 \\ x_3 \end{pmatrix} = \begin{pmatrix} 2 \\ -1 \\ 2\sqrt{2} \end{pmatrix}$$

$$* \sqrt{2}. x_3 = 2\sqrt{2} \Rightarrow x_3 = \frac{2\sqrt{2}}{\sqrt{2}} = \frac{2.2}{2} = 2$$

$$* 1. x_2 - 1. x_3 = -1 \Rightarrow x_2 - 1.2 = -1 \Rightarrow x_2 = -1 + 2 = 1$$

$$* 1. x_1 + 1. x_2 + 0 = 2 \Rightarrow x_1 + 1.1 = 2 \Rightarrow x_1 = 2 - 1 = 1$$