

$$\left[\begin{array}{cccc|cccc} 0 & 1 & -2 & 1 & 1 & 0 & 0 & 0 \\ 2 & 1 & -1 & 0 & 0 & 1 & 0 & 0 \\ -1 & 1 & 0 & 1 & 0 & 0 & 1 & 0 \\ 1 & 2 & 0 & 1 & 0 & 0 & 0 & 1 \end{array} \right]$$

$$\left[\begin{array}{cccc|cccc} 1 & \frac{1}{2} & -\frac{1}{2} & 0 & 0 & \frac{1}{2} & 0 & 0 \\ 0 & 1 & -2 & 1 & 1 & 0 & 0 & 0 \\ -1 & 1 & 0 & 1 & 0 & 0 & 1 & 0 \\ 1 & 2 & 0 & 1 & 0 & 0 & 0 & 1 \end{array} \right]$$

$R_3 = R_1 + R_3$
 $R_4 = R_1 - R_4$

$$\left[\begin{array}{cccc|cccc} 1 & \frac{1}{2} & -\frac{1}{2} & 0 & 0 & \frac{1}{2} & 0 & 0 \\ 0 & 1 & -2 & 1 & 1 & 0 & 0 & 0 \\ 0 & \frac{3}{2} & -\frac{1}{2} & 1 & 0 & \frac{1}{2} & 1 & 0 \\ 0 & -\frac{3}{2} & -\frac{1}{2} & -1 & 0 & \frac{1}{2} & 0 & -1 \end{array} \right]$$

$R_3 = R_2 - \frac{2}{3}R_3$
 $R_4 = R_3 + R_4$

$$\left[\begin{array}{cccc|cccc} 1 & \frac{1}{2} & -\frac{1}{2} & 0 & 0 & \frac{1}{2} & 0 & 0 \\ 0 & 1 & -2 & 1 & 1 & 0 & 0 & 0 \\ 0 & 0 & -\frac{5}{3} & \frac{1}{3} & 1 & -\frac{1}{3} & -\frac{2}{3} & 0 \\ 0 & 0 & -1 & 0 & 0 & 1 & 1 & -1 \end{array} \right]$$

$$\left[\begin{array}{cccc|cccc} 1 & \frac{1}{2} & -\frac{1}{2} & 0 & 0 & \frac{1}{2} & 0 & 0 \\ 0 & 1 & -2 & 1 & 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 & -1 & -1 & 1 \\ 0 & 0 & -\frac{5}{3} & \frac{1}{3} & 1 & -\frac{1}{3} & -\frac{2}{3} & 0 \end{array} \right] \times 3$$

$R_4 = R_3 + \frac{3}{5}R_4$

$$\left[\begin{array}{cccc|cccc} 1 & \frac{1}{2} & -\frac{1}{2} & 0 & 0 & \frac{1}{2} & 0 & 0 \\ 0 & 1 & -2 & 1 & 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 & -1 & -1 & 1 \\ 0 & 0 & 0 & 1 & 5 & -\frac{18}{5} & -7 & 2 \end{array} \right] \times 5$$