

① $r_i \rightarrow r_i + k r_j$ ② $r_i \leftrightarrow r_j$ ③ $r_i \rightarrow \frac{1}{k} r_i$

$$\left(\begin{array}{ccc|c} 2 & 3 & 1 & 1 \\ 2 & 3 & 1 & 1 \\ 6 & 4 & 5 & 1 \end{array} \right) \xrightarrow{r_1 \leftrightarrow r_2} \left(\begin{array}{ccc|c} 2 & 3 & 1 & 1 \\ 0 & 1 & 2 & 1 \\ 6 & 4 & 5 & 1 \end{array} \right)$$

$$\xrightarrow{r_3 \rightarrow r_3 - 3r_1} \left(\begin{array}{ccc|c} 2 & 3 & 1 & 1 \\ 0 & 1 & 2 & 1 \\ 0 & -5 & 2 & -2 \end{array} \right) \xrightarrow{r_3 \rightarrow r_3 + 5r_2} \left(\begin{array}{ccc|c} 2 & 3 & 1 & 1 \\ 0 & 1 & 2 & 1 \\ 0 & 0 & 12 & 3 \end{array} \right)$$

$$\left(\begin{array}{ccc|c} 2 & 3 & 1 & 1 \\ 0 & 1 & 2 & 1 \\ 0 & 0 & 12 & 3 \end{array} \right) \xrightarrow{r_1 \rightarrow \frac{1}{2} r_1} \left(\begin{array}{ccc|c} 1 & \frac{3}{2} & \frac{1}{2} & \frac{1}{2} \\ 0 & 1 & 2 & 1 \\ 0 & 0 & 12 & 3 \end{array} \right) \xrightarrow{r_3 \rightarrow \frac{1}{12} r_3} \left(\begin{array}{ccc|c} 1 & \frac{3}{2} & \frac{1}{2} & \frac{1}{2} \\ 0 & 1 & 2 & 1 \\ 0 & 0 & 1 & \frac{1}{4} \end{array} \right)$$

consistent

$$\left(\begin{array}{ccc|c} 1 & 0 & 0 & -\frac{3}{8} \\ 0 & 1 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & \frac{1}{4} \end{array} \right) \quad \begin{array}{l} x_1 = -\frac{3}{8} \\ x_2 = \frac{1}{2} \\ x_3 = \frac{1}{4} \end{array}$$

① $r_i \rightsquigarrow r_i + k r_j$ ② $r_i \leftrightarrow r_j$ ③ $r_i \rightsquigarrow \cancel{k} \cdot r_i$

$$\left(\begin{array}{ccc|c} 1 & 2 & 1 & 1 \\ 2 & 3 & 1 & 1 \\ 6 & 4 & 5 & 1 \end{array} \right) \xrightarrow{r_1 \leftrightarrow r_2} \left(\begin{array}{ccc|c} 2 & 3 & 1 & 1 \\ 0 & 1 & 2 & 1 \\ 6 & 4 & 5 & 1 \end{array} \right)$$

$$\begin{array}{l} r_3 \rightsquigarrow r_3 - 3r_1 \\ \rightsquigarrow \end{array} \left(\begin{array}{ccc|c} 2 & 3 & 1 & 1 \\ 0 & 1 & 2 & 1 \\ 0 & -5 & 2 & -2 \end{array} \right) \xrightarrow{r_3 \rightsquigarrow r_3 + 5r_2} \left(\begin{array}{ccc|c} & & & \\ & & & \\ 0 & 0 & 12 & 3 \end{array} \right)$$

$$\left(\begin{array}{ccc|c} 2 & 3 & 1 & 1 \\ 0 & 1 & 2 & 1 \\ 0 & 0 & 12 & 3 \end{array} \right) \xrightarrow{\begin{array}{l} r_1 \rightarrow \frac{1}{2} r_1 \\ r_3 \rightarrow \frac{1}{12} r_3 \end{array}} \left(\begin{array}{ccc|c} 1 & \frac{3}{2} & \frac{1}{2} & \frac{1}{2} \\ 0 & 1 & 2 & 1 \\ 0 & 0 & 1 & \frac{1}{4} \end{array} \right)$$

konsistent

$$\left(\begin{array}{ccc|c} 1 & 0 & 0 & -\frac{3}{8} \\ 0 & 1 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & \frac{1}{4} \end{array} \right) \quad \begin{array}{l} x_1 = -\frac{3}{8} \\ x_2 = \frac{1}{2} \\ x_3 = \frac{1}{4} \end{array}$$