

$$A = \begin{bmatrix} 5 & 4 & 6 & 5 \\ 4 & 10 & 8 & 4 \\ 6 & 8 & 10 & 9 \\ 5 & 4 & 9 & 10 \end{bmatrix} \quad B = \begin{pmatrix} 23 \\ 32 \\ 33 \\ 31 \end{pmatrix}$$

$$Ax = B$$

$$\left(\begin{array}{cccc|c} 5 & 4 & 6 & 5 & 23 \\ 4 & 10 & 8 & 4 & 32 \\ 6 & 8 & 10 & 9 & 33 \\ 5 & 4 & 9 & 10 & 31 \end{array} \right) :5 \sim \left(\begin{array}{cccc|c} 1 & 4/5 & 6/5 & 1 & 23/5 \\ 4 & 10 & 8 & 4 & 32 \\ 6 & 8 & 10 & 9 & 33 \\ 5 & 4 & 9 & 10 & 31 \end{array} \right) \text{II} - 4\text{I} \sim$$

$$\sim \left(\begin{array}{cccc|c} 1 & 4/5 & 6/5 & 1 & 23/5 \\ 0 & 1/5 & -2/5 & 0 & -1/5 \\ 6 & 8 & 10 & 9 & 33 \\ 5 & 4 & 9 & 10 & 31 \end{array} \right) :1/5 \sim \left(\begin{array}{cccc|c} 1 & 4/5 & 6/5 & 1 & 23/5 \\ 0 & 1 & -2 & 0 & -1 \\ 6 & 8 & 10 & 9 & 33 \\ 5 & 4 & 9 & 10 & 31 \end{array} \right) \text{III} - 6\text{I} \sim$$

$$\sim \left(\begin{array}{cccc|c} 1 & 4/5 & 6/5 & 1 & 23/5 \\ 0 & 1 & -2 & 0 & -1 \\ 0 & 1 & -4 & -15/2 & -24/2 \\ 0 & 0 & 3 & 5 & 8 \end{array} \right) \text{III} - \text{II} \sim \left(\begin{array}{cccc|c} 1 & 4/5 & 6/5 & 1 & 23/5 \\ 0 & 1 & -2 & 0 & -1 \\ 0 & 0 & -5 & -15/2 & -25/2 \\ 0 & 0 & 3 & 5 & 8 \end{array} \right) :(-5) \sim$$

$$\sim \left(\begin{array}{cccc|c} 1 & 4/5 & 6/5 & 1 & 23/5 \\ 0 & 1 & -2 & 0 & -1 \\ 0 & 0 & 1 & 3/2 & 5/2 \\ 0 & 0 & 3 & 5 & 8 \end{array} \right) \text{IV} - 3\text{III} \sim \left(\begin{array}{cccc|c} 1 & 4/5 & 6/5 & 1 & 23/5 \\ 0 & 1 & -2 & 0 & -1 \\ 0 & 0 & 1 & 3/2 & 5/2 \\ 0 & 0 & 0 & 1/2 & 1/2 \end{array} \right) : (1/2) \sim$$

$$\sim \left(\begin{array}{cccc|c} 1 & 4/5 & 6/5 & 1 & 23/5 \\ 0 & 1 & -2 & 0 & -1 \\ 0 & 0 & 1 & 3/2 & 5/2 \\ 0 & 0 & 0 & 1 & 1 \end{array} \right) x = \begin{pmatrix} 1 \\ 1 \\ 1 \\ 1 \end{pmatrix}$$