

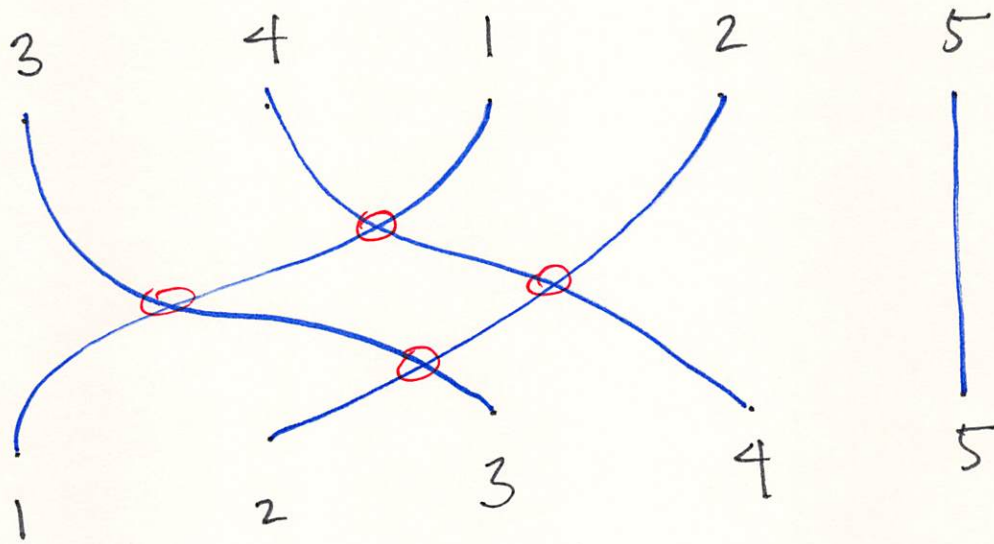
2.4.2 (c)

$$A = \begin{bmatrix} 1 & -2 & 1 \\ 2 & 3 & 2 \\ 3 & 1 & 3 \end{bmatrix}$$

$$\Rightarrow B = \text{ref}(A) = \begin{bmatrix} 1 & 0 & 1 \\ 0 & 1 & 0 \\ 0 & 0 & 0 \end{bmatrix}$$

$$\Rightarrow P = \text{ref}(B^T)^T = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 0 \end{bmatrix}$$

#3.1.6 (b)



4 inversions

$$\Rightarrow \text{sign}(34125) = (-1)^4 = +1.$$

3.2.2 (a)

$$\left| \begin{array}{ccc|c} 4 & -3 & 5 & \\ 5 & 2 & 0 & R_2 \leftarrow 4R_2 - 5R_1 \\ 2 & 0 & 4 & R_3 \leftarrow -2R_3 + R_1 \end{array} \right|$$

$$= \frac{1}{-2} \cdot \frac{1}{4} \left| \begin{array}{ccc|c} 4 & -3 & 5 & \\ 0 & 23 & -25 & \\ 0 & -3 & -3 & R_3 \leftarrow \frac{23}{2}R_2 + R_3 \end{array} \right|$$

$$= -\frac{1}{8} \cdot \frac{3}{23} \cdot \left| \begin{array}{ccc|c} 4 & -3 & 5 & \\ 0 & 23 & -25 & \\ 0 & 0 & -48 & \end{array} \right|$$

$$= -\frac{1}{\cancel{8}} \cdot \frac{3}{\cancel{23}} \cdot 4 \cdot \cancel{23} \cdot (-\cancel{48})$$

$$= 72$$