

問題 7.1.

$$\text{sign} \begin{pmatrix} 1 & 2 & 3 \\ 1 & 2 & 3 \end{pmatrix} = +1, \quad \text{sign} \begin{pmatrix} 1 & 2 & 3 \\ 3 & 1 & 2 \end{pmatrix} = +1, \quad \text{sign} \begin{pmatrix} 1 & 2 & 3 \\ 2 & 3 & 1 \end{pmatrix} = +1,$$

$$\text{sign} \begin{pmatrix} 1 & 2 & 3 \\ 1 & 3 & 2 \end{pmatrix} = -1, \quad \text{sign} \begin{pmatrix} 1 & 2 & 3 \\ 3 & 2 & 1 \end{pmatrix} = -1, \quad \text{sign} \begin{pmatrix} 1 & 2 & 3 \\ 2 & 1 & 3 \end{pmatrix} = -1.$$

問題 7.2. この公式を (3 次正方行列に関する) サラスの公式という ;

$$\det \begin{pmatrix} a_{11} & a_{12} & a_{13} \\ a_{21} & a_{22} & a_{23} \\ a_{31} & a_{32} & a_{33} \end{pmatrix} \\ = a_{11}a_{22}a_{33} + a_{12}a_{23}a_{31} + a_{13}a_{21}a_{32} - (a_{13}a_{22}a_{31} + a_{23}a_{32}a_{11} + a_{33}a_{12}a_{21})$$

問題 7.3.

- (1)  $\det(A) = 1$
- (2)  $\det(B) = 1$
- (3)  $\det(C) = 6$

問題 7.4.

- (1)  $\det(AB) = 1$
- (2)  $\det(C^{-1}) = \frac{1}{6}$

問題 7.5.  $\det(P[i, \lambda]) = \lambda, \quad \det(Q[i, j]) = -1, \quad \det(R[i, j, \lambda]) = 1$