

9 行列式の性質 (多重線形性など)

演習 9.1 $\begin{vmatrix} a_{11} & a_{12} & a_{13} \\ a_{21} & a_{22} & a_{23} \\ a_{31} & a_{32} & a_{33} \end{vmatrix} = 2$ とするとき, 次の行列式の値を求めよ.

$$(1) \begin{vmatrix} a_{11} & a_{21} & a_{31} \\ a_{12} & a_{22} & a_{32} \\ a_{13} & a_{23} & a_{33} \end{vmatrix}$$

$$(2) \begin{vmatrix} -a_{11} & -a_{12} & -a_{13} \\ 2a_{21} & 2a_{22} & 2a_{23} \\ 3a_{31} & 3a_{32} & 3a_{33} \end{vmatrix}$$

$$(3) \begin{vmatrix} a_{13} & a_{12} & a_{11} \\ a_{23} & a_{22} & a_{21} \\ a_{33} & a_{32} & a_{31} \end{vmatrix}$$

$$(4) \begin{vmatrix} a_{11} & a_{12} & a_{13} \\ a_{21} & a_{22} & a_{23} \\ a_{31} - 2a_{21} & a_{32} - 2a_{22} & a_{33} - 2a_{23} \end{vmatrix}$$

演習 9.2 次の行列式の値を求めよ.

$$\begin{vmatrix} \sqrt{5} & -\sqrt{2} & -\sqrt{5} & \sqrt{2} \\ \sqrt{2} & \sqrt{5} & -\sqrt{2} & -\sqrt{5} \\ \sqrt{7} & -\sqrt{3} & \sqrt{7} & -\sqrt{3} \\ \sqrt{3} & \sqrt{7} & \sqrt{3} & \sqrt{7} \end{vmatrix}$$