

1 次の等号が成り立つように, 空欄に数字を入れよ. (各 1 点)

$$(1) \begin{vmatrix} 15 & 10 \\ 4 & 3 \end{vmatrix} = \square \times \begin{vmatrix} 3 & 2 \\ 4 & 3 \end{vmatrix} \quad (2) \begin{vmatrix} -2 & 3 \\ 6 & 1 \end{vmatrix} = \square \times \begin{vmatrix} 6 & 1 \\ -2 & 3 \end{vmatrix}$$

$$(3) \begin{vmatrix} 2 & 4 & 9 \\ 3 & 2 & 1 \\ -1 & 2 & 0 \end{vmatrix} + \begin{vmatrix} 2 & 4 & 9 \\ 3 & -1 & 4 \\ -1 & 2 & 0 \end{vmatrix} = \begin{vmatrix} 2 & 4 & 9 \\ 6 & 1 & \square \\ -1 & 2 & 0 \end{vmatrix} \quad (4) \begin{vmatrix} a & b & c \\ 2d & 2e & 2f \\ 3g & 3h & 3i \end{vmatrix} = \square \times \begin{vmatrix} a & b & c \\ d & e & f \\ g & h & i \end{vmatrix}$$

2 次の式の値を求めよ.

$$(1) \begin{vmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & a \end{vmatrix} - \begin{vmatrix} 1 & 4 & 7 \\ 2 & 5 & 8 \\ 3 & 6 & a \end{vmatrix} \quad (2) \begin{vmatrix} 1 & 2 & 0 & 4 \\ a & b & 0 & d \\ 11 & 12 & 0 & 14 \\ -2 & -1 & 0 & 1 \end{vmatrix} \quad (3) \begin{vmatrix} 1 & 2 & 3 & 4 \\ 0 & -1 & -2 & -3 \\ 0 & 0 & 4 & 5 \\ 0 & 0 & 0 & -4 \end{vmatrix}$$

$$(4) \begin{vmatrix} 0 & 0 & 1 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 \\ 1 & 0 & 0 & 0 \end{vmatrix} \quad (5) \begin{vmatrix} 0 & -1 & -2 & -3 & -4 \\ 0 & 0 & 4 & 5 & 6 \\ 0 & 0 & 0 & -4 & -5 \\ 0 & 0 & 0 & 0 & 7 \\ 1 & 2 & 3 & 4 & 5 \end{vmatrix} \quad (6) \begin{vmatrix} 1000 & 2000 & 3000 \\ 0.001 & -0.002 & 0.003 \\ 5 & 10 & 25 \end{vmatrix}$$

$$(7) \begin{vmatrix} 2 & 1 & -2 \\ 4 & 3 & -3 \\ 6 & 3 & -7 \end{vmatrix}$$

3 行列式 $\begin{vmatrix} a_{11} & a_{12} & a_{13} & a_{14} \\ a_{21} & a_{22} & a_{23} & a_{24} \\ a_{31} & a_{32} & a_{33} & a_{34} \\ a_{41} & a_{42} & a_{43} & a_{44} \end{vmatrix}$ について, 次の項の符号を求めよ.

(1) $a_{12}a_{21}a_{34}a_{43}$

(2) $a_{14}a_{23}a_{31}a_{42}$

(3) $a_{13}a_{24}a_{32}a_{41}$