問題 **2.1.**

(1) $A + B$ は計算できい. $AB = \begin{pmatrix} -1 & 1 \\ 0 & -4 \end{pmatrix}$, $BA = \begin{pmatrix} -7 & 2 & -2 \\ -6 & 0 & -2 \\ 9 & -6 & 2 \end{pmatrix}$

(2) $A + B = \begin{pmatrix} -1 & 3 \\ 7 & 4 \end{pmatrix}$, $AB = \begin{pmatrix} 4 & 3 \\ 1 & 7 \end{pmatrix}$, $BA = \begin{pmatrix} 2 & -1 \\ 7 & 9 \end{pmatrix}$

(3) $A + B$ は計算できい. $AB = \begin{pmatrix} 2 & -1 & 1 \\ 4 & -2 & 2 \\ 6 & -3 & 3 \end{pmatrix}$, $BA = \begin{pmatrix} 6 \end{pmatrix}$

(4) $A + B = \begin{pmatrix} 1 & 1 & 2 \\ 1 & 3 & 7 \\ 5 & 0 & -1 \end{pmatrix}$, $AB = \begin{pmatrix} -1 & 3 & 10 \\ 10 & 2 & 7 \\ -6 & -2 & 4 \end{pmatrix}$ $BA = \begin{pmatrix} 6 & -1 & -9 \\ 9 & 4 & -3 \\ 5 & 6 & -5 \end{pmatrix}$

問題 **2.2.**

(1) ${}^tA = \begin{pmatrix} 1 & 3 & 2 \\ -2 & 7 & -5 \\ 0 & -1 & 1 \end{pmatrix}$ (2) ${}^tA = \begin{pmatrix} 1 & -2 & 1 \end{pmatrix}$

(3) ${}^tA = \begin{pmatrix} 2 & 0 \\ -3 & -1 \\ 1 & 2 \end{pmatrix}$ (4) ${}^tA = A = \begin{pmatrix} 2 & -3 & 2 \\ -3 & -1 & 2 \\ 2 & 2 & 1 \end{pmatrix}$

問題 **2.3.**

(1) $A^{-1} = \frac{1}{2} \begin{pmatrix} -4 & 2 \\ 3 & -1 \end{pmatrix}$ (2) $A^{-1} = \begin{pmatrix} 2 & -1 \\ 5 & -3 \end{pmatrix}$ (3) A^{-1} は存在しない.