

# 代数学幾何学 (A/B) 計算演習 [問題] (2009/07/02)

問. 次の行列の逆行列を求めなさい

Q.1

$$\begin{pmatrix} 0 & -3 & 2 \\ -1 & 4 & -1 \\ 1 & 4 & -4 \end{pmatrix}$$

Q.7

$$\begin{pmatrix} 0 & 1 & -1 & 1 \\ 1 & 0 & 0 & -1 \\ -2 & 2 & -1 & 1 \\ 1 & -3 & 2 & 0 \end{pmatrix}$$

Q.13

$$\begin{pmatrix} -1 & 5 & -1 & -1 \\ 1 & -5 & 0 & 2 \\ 1 & 0 & 1 & -1 \\ -1 & -2 & 1 & 0 \end{pmatrix}$$

Q.2

$$\begin{pmatrix} -5 & 5 & 5 & 3 \\ 2 & -1 & -4 & 0 \\ -1 & 1 & 2 & 0 \\ 0 & -1 & 2 & -1 \end{pmatrix}$$

Q.8

$$\begin{pmatrix} -1 & 3 & -2 \\ 1 & 0 & 0 \\ 1 & -4 & 3 \end{pmatrix}$$

Q.14

$$\begin{pmatrix} 0 & -3 & 4 \\ 1 & 1 & -2 \\ 0 & 1 & -1 \end{pmatrix}$$

Q.3

$$\begin{pmatrix} 0 & 1 & -1 \\ 1 & 0 & 0 \\ -2 & -1 & 2 \end{pmatrix}$$

Q.9

$$\begin{pmatrix} -1 & 1 & -1 \\ 0 & 0 & 1 \\ 1 & 0 & -2 \end{pmatrix}$$

Q.15

$$\begin{pmatrix} 3 & -1 & -5 & -1 \\ -2 & 1 & 2 & 0 \\ 0 & 0 & -1 & 1 \\ 2 & -1 & -1 & 0 \end{pmatrix}$$

Q.4

$$\begin{pmatrix} -1 & -1 & 3 & -1 \\ -1 & 1 & -2 & 1 \\ 1 & 0 & 2 & -2 \\ 0 & 0 & -1 & 1 \end{pmatrix}$$

Q.10

$$\begin{pmatrix} 5 & -5 & 2 & 1 \\ -3 & 5 & -1 & -2 \\ 2 & -2 & 0 & 1 \\ -2 & -1 & 0 & 1 \end{pmatrix}$$

Q.16

$$\begin{pmatrix} -5 & 5 & -2 & 1 \\ 1 & 0 & 0 & 0 \\ -3 & 1 & -1 & 1 \\ 4 & -4 & 2 & -1 \end{pmatrix}$$

Q.5

$$\begin{pmatrix} 0 & 0 & 1 \\ -4 & 1 & 3 \\ 1 & 0 & -2 \end{pmatrix}$$

Q.11

$$\begin{pmatrix} 5 & -2 & -9 & 5 \\ -1 & 1 & 1 & -1 \\ 0 & -1 & 2 & -1 \\ -1 & 0 & 2 & 0 \end{pmatrix}$$

Q.17

$$\begin{pmatrix} 5 & 0 & -3 & 0 \\ -8 & 2 & 3 & 2 \\ 2 & -3 & 1 & -1 \\ -3 & 4 & -1 & 1 \end{pmatrix}$$

Q.6

$$\begin{pmatrix} 0 & 2 & 1 & -1 \\ -1 & 0 & 0 & 1 \\ -2 & 1 & 9 & 0 \\ 1 & -1 & -3 & 0 \end{pmatrix}$$

Q.12

$$\begin{pmatrix} 1 & 0 & 0 \\ -2 & 0 & 1 \\ -1 & 1 & -2 \end{pmatrix}$$

Q.18

$$\begin{pmatrix} -2 & 4 & -5 \\ 1 & -2 & 3 \\ 2 & -3 & 2 \end{pmatrix}$$

代数学幾何学 (A/B) 計算演習 [解答] (2009/07/02)

A.1

$$A^{-1} = \begin{pmatrix} 12 & 4 & 5 \\ 5 & 2 & 2 \\ 8 & 3 & 3 \end{pmatrix}$$

A.7

$$A^{-1} = \begin{pmatrix} 1 & 2 & 1 & 1 \\ 1 & 4 & 3 & 2 \\ 1 & 5 & 4 & 3 \\ 1 & 1 & 1 & 1 \end{pmatrix}$$

A.13

$$A^{-1} = \begin{pmatrix} 1 & 1 & 1 & 0 \\ 5 & 4 & 3 & 2 \\ 11 & 9 & 7 & 5 \\ 12 & 10 & 7 & 5 \end{pmatrix}$$

A.2

$$A^{-1} = \begin{pmatrix} 2 & 7 & 3 & 6 \\ 0 & 1 & 2 & 0 \\ 1 & 3 & 1 & 3 \\ 2 & 5 & 0 & 5 \end{pmatrix}$$

A.8

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

A.14

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

A.3

$$A^{-1} = \begin{pmatrix} 0 & 1 & 0 \\ 2 & 2 & 1 \\ 1 & 2 & 1 \end{pmatrix}$$

A.9

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

A.15

$$A^{-1} = \begin{pmatrix} 1 & 5 & 1 & 4 \\ 2 & 9 & 2 & 6 \\ 0 & 1 & 0 & 1 \\ 0 & 1 & 1 & 1 \end{pmatrix}$$

A.4

$$A^{-1} = \begin{pmatrix} 0 & 0 & 1 & 2 \\ 1 & 2 & 3 & 5 \\ 1 & 1 & 2 & 4 \\ 1 & 1 & 2 & 5 \end{pmatrix}$$

A.10

$$A^{-1} = \begin{pmatrix} 1 & 2 & 2 & 1 \\ 4 & 8 & 7 & 5 \\ 5 & 9 & 7 & 6 \\ 6 & 12 & 11 & 8 \end{pmatrix}$$

A.16

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

A.5

$$A^{-1} = \begin{pmatrix} 2 & 0 & 1 \\ 5 & 1 & 4 \\ 1 & 0 & 0 \end{pmatrix}$$

A.11

$$A^{-1} = \begin{pmatrix} 4 & 14 & 6 & 5 \\ 3 & 11 & 4 & 4 \\ 2 & 7 & 3 & 3 \\ 1 & 3 & 1 & 2 \end{pmatrix}$$

A.17

$$A^{-1} = \begin{pmatrix} 5 & 3 & 18 & 12 \\ 5 & 3 & 19 & 13 \\ 8 & 5 & 30 & 20 \\ 3 & 2 & 8 & 5 \end{pmatrix}$$

A.6

$$A^{-1} = \begin{pmatrix} 6 & 6 & 5 & 17 \\ 3 & 3 & 2 & 7 \\ 1 & 1 & 1 & 3 \\ 6 & 7 & 5 & 17 \end{pmatrix}$$

A.12

$$A^{-1} = \begin{pmatrix} 1 & 0 & 0 \\ 5 & 2 & 1 \\ 2 & 1 & 0 \end{pmatrix}$$

A.18

$$A^{-1} = \begin{pmatrix} 5 & 7 & 2 \\ 4 & 6 & 1 \\ 1 & 2 & 0 \end{pmatrix}$$