

# 代幾 I 計算演習 [問題] (2008/06/19)

問. 次の二つの行列  $A, B$  の積  $AB$  を求めなさい

Q.1

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

Q.2

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

Q.3

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

Q.4

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

Q.5

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

Q.6

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

Q.7

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

Q.8

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

Q.9

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

Q.10

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

Q.11

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

Q.12

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

Q.13

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

代幾 I 計算演習 [解答] (2008/06/19)

A.1

$$AB = \begin{pmatrix} 12 & -10 \end{pmatrix}$$

A.2

$$AB = \begin{pmatrix} -4 & -14 & 8 \end{pmatrix}$$

A.3

$$AB = \begin{pmatrix} 8 & 6 & -2 & 0 \\ -2 & -2 & 0 & 6 \end{pmatrix}$$

A.4

$$AB = \begin{pmatrix} -6 \\ 3 \end{pmatrix}$$

A.5

$$AB = \begin{pmatrix} -2 & 11 & -6 & -4 \\ -7 & 3 & -3 & -4 \\ -8 & 13 & -4 & 2 \end{pmatrix}$$

A.6

$$AB = \begin{pmatrix} -9 & 7 & -3 & 2 \\ -12 & 16 & 3 & -6 \end{pmatrix}$$

A.7

$$AB = \begin{pmatrix} 6 & 6 & -6 \\ -5 & -4 & 5 \end{pmatrix}$$

A.8

$$AB = \begin{pmatrix} 0 \\ 11 \\ -3 \\ 10 \end{pmatrix}$$

A.9

$$AB = \begin{pmatrix} -6 & -6 & 0 & 2 \\ -6 & -6 & 0 & 2 \\ -3 & -3 & 0 & 1 \\ -6 & -6 & 0 & 2 \end{pmatrix}$$

A.10

$$AB = \begin{pmatrix} -3 & 3 & -3 \\ -5 & 1 & -1 \\ 4 & -8 & 8 \end{pmatrix}$$

A.11

$$AB = \begin{pmatrix} 8 & 6 \\ -3 & -7 \end{pmatrix}$$

A.12

$$AB = \begin{pmatrix} -2 & -2 & 3 & 0 \\ -6 & -6 & 9 & 0 \\ -4 & -4 & 6 & 0 \\ -4 & -4 & 6 & 0 \end{pmatrix}$$

A.13

$$AB = \begin{pmatrix} 0 & -7 & -2 \\ -7 & -1 & 1 \\ -12 & -6 & 8 \\ 16 & 10 & -4 \end{pmatrix}$$