

代幾 I 計算演習 [問題] (2007/07/12)

問. 次の平面ベクトル v への射影子行列を求めなさい

Q.1

$$v = \begin{pmatrix} 19 \\ 2 \end{pmatrix}$$

Q.9

$$v = \begin{pmatrix} -7 \\ 9 \end{pmatrix}$$

Q.2

$$v = \begin{pmatrix} 5 \\ -4 \end{pmatrix}$$

Q.10

$$v = \begin{pmatrix} 12 \\ 5 \end{pmatrix}$$

Q.3

$$v = \begin{pmatrix} -7 \\ 16 \end{pmatrix}$$

Q.11

$$v = \begin{pmatrix} 18 \\ -3 \end{pmatrix}$$

Q.4

$$v = \begin{pmatrix} -11 \\ 19 \end{pmatrix}$$

Q.12

$$v = \begin{pmatrix} -7 \\ 20 \end{pmatrix}$$

Q.5

$$v = \begin{pmatrix} -6 \\ 6 \end{pmatrix}$$

Q.13

$$v = \begin{pmatrix} -11 \\ -4 \end{pmatrix}$$

Q.6

$$v = \begin{pmatrix} -14 \\ -14 \end{pmatrix}$$

Q.14

$$v = \begin{pmatrix} 16 \\ 4 \end{pmatrix}$$

Q.7

$$v = \begin{pmatrix} 6 \\ -2 \end{pmatrix}$$

Q.15

$$v = \begin{pmatrix} 5 \\ 0 \end{pmatrix}$$

Q.8

$$v = \begin{pmatrix} -8 \\ -6 \end{pmatrix}$$

Q.16

$$v = \begin{pmatrix} 18 \\ 2 \end{pmatrix}$$

代幾 I 計算演習 [解答] (2007/07/12)

A.1

$$\begin{pmatrix} \frac{361}{365} & \frac{38}{365} \\ \frac{38}{365} & \frac{4}{365} \end{pmatrix}$$

A.2

$$\begin{pmatrix} \frac{25}{41} & -\frac{20}{41} \\ -\frac{20}{41} & \frac{16}{41} \end{pmatrix}$$

A.3

$$\begin{pmatrix} \frac{49}{305} & -\frac{112}{305} \\ -\frac{112}{305} & \frac{256}{305} \end{pmatrix}$$

A.4

$$\begin{pmatrix} \frac{121}{482} & -\frac{209}{482} \\ -\frac{209}{482} & \frac{361}{482} \end{pmatrix}$$

A.5

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

A.6

$$\begin{pmatrix} \frac{1}{2} & \frac{1}{2} \\ \frac{1}{2} & \frac{1}{2} \end{pmatrix}$$

A.7

$$\begin{pmatrix} \frac{9}{10} & -\frac{3}{10} \\ -\frac{3}{10} & \frac{1}{10} \end{pmatrix}$$

A.8

$$\begin{pmatrix} \frac{16}{25} & \frac{12}{25} \\ \frac{12}{25} & \frac{9}{25} \end{pmatrix}$$

A.9

$$\begin{pmatrix} \frac{49}{130} & -\frac{63}{130} \\ -\frac{63}{130} & \frac{81}{130} \end{pmatrix}$$

A.10

$$\begin{pmatrix} \frac{144}{169} & \frac{60}{169} \\ \frac{60}{169} & \frac{25}{169} \end{pmatrix}$$

A.11

$$\begin{pmatrix} \frac{36}{37} & -\frac{6}{37} \\ -\frac{6}{37} & \frac{1}{37} \end{pmatrix}$$

A.12

$$\begin{pmatrix} \frac{49}{449} & -\frac{140}{449} \\ -\frac{140}{449} & \frac{400}{449} \end{pmatrix}$$

A.13

$$\begin{pmatrix} \frac{121}{137} & \frac{44}{137} \\ \frac{44}{137} & \frac{16}{137} \end{pmatrix}$$

A.14

$$\begin{pmatrix} \frac{16}{17} & \frac{4}{17} \\ \frac{4}{17} & \frac{1}{17} \end{pmatrix}$$

A.15

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

A.16

$$\begin{pmatrix} \frac{81}{82} & \frac{9}{82} \\ \frac{9}{82} & \frac{1}{82} \end{pmatrix}$$