

代幾 I 計算演習 [問題] (2008/06/05)

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

$$v = \begin{pmatrix} 13 \\ 5 \end{pmatrix}$$

Q.9

$$v = \begin{pmatrix} 15 \\ 9 \end{pmatrix}$$

Q.2

$$v = \begin{pmatrix} -14 \\ -6 \end{pmatrix}$$

Q.10

$$v = \begin{pmatrix} 17 \\ -4 \end{pmatrix}$$

Q.3

$$v = \begin{pmatrix} -17 \\ -12 \end{pmatrix}$$

Q.11

$$v = \begin{pmatrix} 1 \\ -11 \end{pmatrix}$$

Q.4

$$v = \begin{pmatrix} 12 \\ 7 \end{pmatrix}$$

Q.12

$$v = \begin{pmatrix} 11 \\ 20 \end{pmatrix}$$

Q.5

$$v = \begin{pmatrix} -2 \\ 1 \end{pmatrix}$$

Q.13

$$v = \begin{pmatrix} -4 \\ -3 \end{pmatrix}$$

Q.6

$$v = \begin{pmatrix} 5 \\ 1 \end{pmatrix}$$

Q.14

$$v = \begin{pmatrix} -15 \\ 0 \end{pmatrix}$$

Q.7

$$v = \begin{pmatrix} -7 \\ -11 \end{pmatrix}$$

Q.8

$$v = \begin{pmatrix} 1 \\ -10 \end{pmatrix}$$

Q.15

$$v = \begin{pmatrix} 9 \\ 2 \end{pmatrix}$$

代幾 I 計算演習 [解答] (2008/06/05)

A.1

$$\begin{pmatrix} \frac{169}{194} & \frac{65}{194} \\ \frac{65}{194} & \frac{25}{194} \end{pmatrix}$$

A.2

$$\begin{pmatrix} \frac{49}{58} & \frac{21}{58} \\ \frac{21}{58} & \frac{9}{58} \end{pmatrix}$$

A.3

$$\begin{pmatrix} \frac{289}{433} & \frac{204}{433} \\ \frac{204}{433} & \frac{144}{433} \end{pmatrix}$$

A.4

$$\begin{pmatrix} \frac{144}{193} & \frac{84}{193} \\ \frac{84}{193} & \frac{49}{193} \end{pmatrix}$$

A.5

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

A.6

$$\begin{pmatrix} \frac{25}{26} & \frac{5}{26} \\ \frac{5}{26} & \frac{1}{26} \end{pmatrix}$$

A.7

$$\begin{pmatrix} \frac{49}{170} & \frac{77}{170} \\ \frac{77}{170} & \frac{121}{170} \end{pmatrix}$$

A.8

$$\begin{pmatrix} \frac{1}{101} & -\frac{10}{101} \\ -\frac{10}{101} & \frac{100}{101} \end{pmatrix}$$

A.9

$$\begin{pmatrix} \frac{25}{34} & \frac{15}{34} \\ \frac{15}{34} & \frac{9}{34} \end{pmatrix}$$

A.10

$$\begin{pmatrix} \frac{289}{305} & -\frac{68}{305} \\ -\frac{68}{305} & \frac{16}{305} \end{pmatrix}$$

A.11

$$\begin{pmatrix} \frac{1}{122} & -\frac{11}{122} \\ -\frac{11}{122} & \frac{121}{122} \end{pmatrix}$$

A.12

$$\begin{pmatrix} \frac{121}{521} & \frac{220}{521} \\ \frac{220}{521} & \frac{400}{521} \end{pmatrix}$$

A.13

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

A.14

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

A.15

$$\begin{pmatrix} \frac{81}{85} & \frac{18}{85} \\ \frac{18}{85} & \frac{4}{85} \end{pmatrix}$$