

WebAssign

CH 1.5 (Homework)

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MA 265 Spring 2013, section 132, Spring 2013
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Current Score : 20 / 20 Due : Thursday, January 24 2013 11:40 PM EST

1. 4/4 points | [Previous Answers](#)

KolmanLinAlg9 1.5.016.

Find a 2×2 matrix $B \neq O$ and $B \neq I_2$ such that $AB = BA$, where $A = \begin{bmatrix} 1 & 3 \\ 0 & 1 \end{bmatrix}$.

$$B = \begin{bmatrix} 1 & 3 \\ 0 & 1 \end{bmatrix}$$



How many such matrices B are there? (Enter ∞ if there are infinitely many.)



2. 4/4 points | [Previous Answers](#)

KolmanLinAlg9 1.5.030.

If A is an $n \times n$ matrix, then $A = S + K$, where S is symmetric and K is skew symmetric. Let

$$A = \begin{bmatrix} 4 & 3 & -2 \\ 4 & 6 & 2 \\ 5 & 1 & 4 \end{bmatrix}.$$

Find the matrices S and K described above.

$$S = \begin{bmatrix} 4 & 7/2 & 3/2 \\ 7/2 & 6 & 3/2 \\ 3/2 & 3/2 & 4 \end{bmatrix}$$



$$K = \begin{bmatrix} 0 & -1/2 & -7/2 \\ 1/2 & 0 & 1/2 \\ 7/2 & -1/2 & 0 \end{bmatrix}$$



3. 4/4 points | [Previous Answers](#)

KolmanLinAlg9 1.5.032.

If $D = \begin{bmatrix} 3 & 0 & 0 \\ 0 & -5 & 0 \\ 0 & 0 & 4 \end{bmatrix}$, find D^{-1} .

$$D^{-1} = \begin{bmatrix} 1/3 & 0 & 0 \\ 0 & -1/5 & 0 \\ 0 & 0 & 1/4 \end{bmatrix}$$

4. 4/4 points | [Previous Answers](#)

KolmanLinAlg9 1.5.035.

If

$$A^{-1} = \begin{bmatrix} 4 & 2 \\ 1 & 4 \end{bmatrix} \text{ and } B^{-1} = \begin{bmatrix} 2 & 5 \\ 3 & -2 \end{bmatrix},$$

find $(AB)^{-1}$.

$$(AB)^{-1} = \begin{bmatrix} 13 & 24 \\ 10 & -2 \end{bmatrix}$$

5. 4/4 points | [Previous Answers](#)

KolmanLinAlg9 1.5.036.

Suppose that

$$A^{-1} = \begin{bmatrix} 1 & 2 \\ 1 & 3 \end{bmatrix}.$$

Solve the linear system $A\mathbf{x} = \mathbf{b}$ for each of the following matrices \mathbf{b} .

(a) $\begin{bmatrix} 5 \\ 8 \end{bmatrix}$

$$\mathbf{x} = \begin{bmatrix} 21 \\ 29 \end{bmatrix}$$



(b) $\begin{bmatrix} 9 \\ 14 \end{bmatrix}$

$$\mathbf{x} = \begin{bmatrix} 37 \\ 51 \end{bmatrix}$$

