(1 point)

Find the eigenvalues of 
$$A$$
, given that  $A=\begin{bmatrix} 3 & 0 & 0 \\ -6 - 3 & 0 \end{bmatrix}$ 

and its eigenvectors are  $\begin{bmatrix} 0 \\ -1 \\ -1 \end{bmatrix}$ ,  $\begin{bmatrix} 0 \\ 0 \\ -1 \end{bmatrix}$  and  $\begin{bmatrix} 1 \\ -1 \\ -2 \end{bmatrix}$ 

The eigenvalues are

Ш

, and

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(1 point) Calculate  $\det(A-\lambda I)$  for the following matrices A and values of  $\lambda$ 

If 
$$A=egin{bmatrix} 7 & -5 \ 10 & -8 \end{bmatrix}$$
 , and  $\lambda=4$  then  $\det(A-\lambda I)=egin{bmatrix} lacksymbol{\square} & lacksy$ 

If 
$$A=egin{bmatrix} -14 & 10 \ -20 & 16 \end{bmatrix}$$
 , and  $\lambda=7$  then  $\det(A-\lambda I)=egin{bmatrix} lacksquare$ 

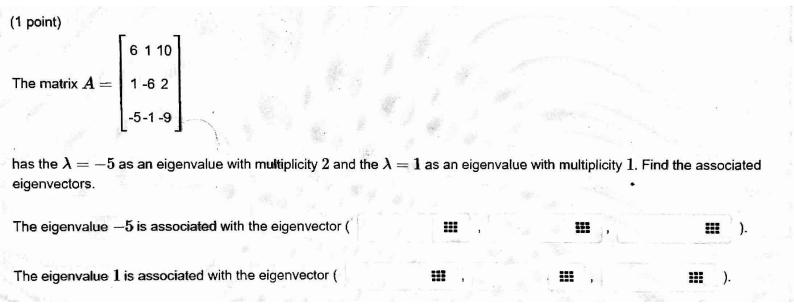
If 
$$A = egin{bmatrix} 26 & 9 \ -54 & -19 \end{bmatrix}$$
 , and  $\lambda = 8$  then  $\det(A - \lambda I) = 1$ 

Determine if given  $\lambda$  is an eigenvalue of the given matrix A.

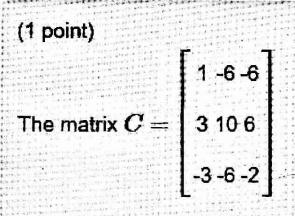
Select an Answer 
$$\vee$$
 1.  $A=\begin{bmatrix} 7 & -5 \ 10 & -8 \end{bmatrix}$  ,  $\lambda=4$ 

Select an Answer 
$$\vee$$
 2.  $A = \begin{bmatrix} -14 & 10 \\ -20 & 16 \end{bmatrix}$ ,  $\lambda = 7$ 

Select an Answer 
$$\vee$$
 3.  $A=\begin{bmatrix} 26 & 9 \ -54 & -19 \end{bmatrix}$ ,  $\lambda=8$ 



(1 point) Find the eigenvalues and corr	esponding eigenvectors of the matrix	
$\begin{bmatrix} -2 & -6 & -16 \end{bmatrix}$	文はです。 大学の大学の大学の大学の大学の大学の大学の大学の大学の大学の大学の大学の大学の大	
$A = \begin{bmatrix} 0 & 1 & -2 \end{bmatrix}$	· (1) · (1)	
O selection 2	· · · · · · · · · · · · · · · · · · ·	
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The eigenvalue $\lambda_1=$	corresponds to the eigenvector (	
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The state of the s	(1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	
The eigenvalue $\lambda_2=$	corresponds to the eigenvector (	8
portrario de la compania del compania del compania de la compania del la compania de la compania del la compania de la compani		
	and the control of the first of the control of the	
The eigenvalue $\lambda_3=$	corresponds to the eigenvector (	,
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has two distinct eigenvalues,  $\lambda_1 < \lambda_2$ :

(1 point) The matrix

$$C = \begin{bmatrix} 12-8-32 \\ -4 & 8 & 16 \end{bmatrix}$$

has two distinct eigenvalues,  $\lambda_1 < \lambda_2$ :

 $\lambda_1=$  has multiplicity

properties and analysis of the second second

 $\Lambda_2 =$  has multiplicity

Is the matrix  $oldsymbol{C}$  diagonalizable? (enter YES or NO)

The dimension of the corresponding eigenspace is

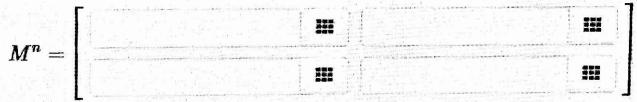
. The dimension of the corresponding eigenspace is

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(1 point) Let: 
$$A=\begin{bmatrix} -34 & 39 \\ -26 & 31 \end{bmatrix}$$
 Find  $P$ ,  $D$  and  $P^{-1}$  such that  $A=PDP^{-1}$ 

(1 point)
$$\text{Let } M = \begin{bmatrix} 12-6 \\ \\ 12-6 \end{bmatrix}.$$

Find formulas for the entries of  $M^n$ , where n is a positive integer.



You might consider diagonalization of matrix M= to ease the calculations.

(1 point) Let: 
$$oldsymbol{A} = egin{bmatrix} 2 & 0 & 0 \ 0 & -4 & 0 \ -3 & -3 & -1 \end{bmatrix}$$

Find invertible matrix P and diagonal matrix D such that  $A=PDP^{-1}$  .

Note: all answer blanks must be filled out