Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 10 & 9 & 10 & 7 \\ 9 & 11 & 9 & 8 \\ 11 & 6 & 8 & 11 \\ 9 & 7 & 6 & 10 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 3 & 3 & 2 \\ 2 & 1 & 2 \\ 4 & 1 & 3 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} -6 & -2 & 2 \\ -3 & -5 & 7 \\ -6 & -4 & 6 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 11 & 7 & 11 & 9 \\ 8 & 8 & 11 & 8 \\ 9 & 9 & 9 & 10 \\ 9 & 8 & 6 & 9 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 1 & 1 & 2 \\ 1 & 4 & 1 \\ 1 & 2 & 3 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} -7 & -5 & -3 \\ 4 & 2 & 3 \\ 7 & 7 & 4 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 7 & 9 & 7 & 8 \\ 8 & 11 & 8 & 11 \\ 6 & 8 & 10 & 10 \\ 7 & 11 & 9 & 8 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 2 & 2 & 4 \\ 3 & 2 & 1 \\ 2 & 1 & 1 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} -3 & -2 & -8 \\ -10 & 5 & -8 \\ -8 & 8 & 3 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.
   (b) Find the eigenvalues for A.
   (c) Find the eigenvectors for A.
   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 6 & 6 & 7 & 7 \\ 10 & 11 & 9 & 10 \\ 7 & 8 & 7 & 9 \\ 6 & 10 & 10 & 10 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 3 & 2 & 3 \\ 1 & 2 & 2 \\ 2 & 2 & 1 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} -2 & -2 & -2 \\ -5 & -5 & 2 \\ -2 & -8 & 7 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 10 & 11 & 11 & 8 \\ 9 & 11 & 10 & 11 \\ 8 & 10 & 10 & 11 \\ 9 & 7 & 8 & 8 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 3 & 3 & 2 \\ 2 & 3 & 1 \\ 1 & 4 & 1 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} -8 & -9 & -9 \\ 4 & 7 & 3 \\ -2 & -6 & 7 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 10 & 10 & 10 & 8 \\ 6 & 11 & 8 & 10 \\ 11 & 8 & 11 & 7 \\ 10 & 8 & 11 & 10 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 1 & 3 & 1 \\ 3 & 2 & 2 \\ 4 & 1 & 2 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} 9 & 3 & -5 \\ -2 & 4 & 2 \\ 2 & 2 & 2 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 11 & 9 & 9 & 9 \\ 11 & 7 & 10 & 11 \\ 11 & 8 & 8 & 6 \\ 10 & 9 & 10 & 9 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 1 & 4 & 3 \\ 4 & 1 & 3 \\ 3 & 1 & 2 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} -2 & -4 & 2 \\ -3 & -3 & -4 \\ 3 & -3 & -2 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 7 & 7 & 11 & 11 \\ 7 & 10 & 9 & 6 \\ 6 & 10 & 11 & 8 \\ 11 & 7 & 8 & 8 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 1 & 3 & 4 \\ 3 & 4 & 3 \\ 1 & 2 & 3 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} -4 & -4 & 7 \\ 4 & -2 & 2 \\ 2 & -4 & 7 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 8 & 6 & 9 & 9 \\ 10 & 11 & 8 & 11 \\ 11 & 10 & 8 & 7 \\ 11 & 8 & 11 & 8 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 2 & 2 & 1 \\ 2 & 1 & 2 \\ 2 & 3 & 3 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} -5 & -2 & 2 \\ -6 & -8 & 6 \\ -7 & -6 & 4 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 11 & 11 & 10 & 9 \\ 8 & 7 & 9 & 11 \\ 9 & 6 & 10 & 10 \\ 10 & 10 & 9 & 11 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 3 & 2 & 3 \\ 3 & 4 & 4 \\ 2 & 3 & 4 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} -2 & -9 & 9 \\ 4 & -2 & -4 \\ 4 & -9 & 3 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 7 & 9 & 11 & 10 \\ 9 & 10 & 9 & 6 \\ 7 & 10 & 10 & 9 \\ 7 & 10 & 9 & 10 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 3 & 1 & 1 \\ 2 & 3 & 1 \\ 3 & 3 & 2 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} 4 & -9 & -8 \\ -2 & -3 & -8 \\ 2 & -2 & 3 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 11 & 11 & 6 & 10 \\ 8 & 7 & 9 & 8 \\ 8 & 11 & 7 & 8 \\ 6 & 8 & 9 & 6 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 2 & 3 & 2 \\ 4 & 2 & 1 \\ 1 & 3 & 3 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} 2 & -7 & 6 \\ -2 & -3 & 6 \\ -4 & 4 & -2 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 6 & 9 & 10 & 10 \\ 8 & 8 & 8 & 9 \\ 11 & 11 & 7 & 10 \\ 9 & 11 & 8 & 9 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 1 & 2 & 3 \\ 4 & 2 & 2 \\ 1 & 1 & 2 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} -8 & -6 & -6 \\ -4 & -9 & -6 \\ 6 & 6 & 4 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 11 & 11 & 7 & 11 \\ 8 & 7 & 8 & 7 \\ 9 & 7 & 9 & 8 \\ 11 & 9 & 7 & 6 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 1 & 2 & 1 \\ 3 & 2 & 2 \\ 4 & 3 & 2 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} 2 & 5 & -4 \\ -6 & -7 & 6 \\ 6 & 5 & -8 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.
   (b) Find the eigenvalues for A.
   (c) Find the eigenvectors for A.
   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 6 & 9 & 7 & 8 \\ 6 & 7 & 10 & 6 \\ 8 & 8 & 6 & 8 \\ 7 & 11 & 8 & 11 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 4 & 3 & 3 \\ 2 & 2 & 1 \\ 1 & 3 & 2 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} 4 & 2 & 6 \\ 3 & 5 & -6 \\ -9 & -5 & -8 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.
   (b) Find the eigenvalues for A.
   (c) Find the eigenvectors for A.
   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 11 & 8 & 7 & 7 \\ 11 & 7 & 7 & 10 \\ 11 & 8 & 8 & 11 \\ 6 & 6 & 9 & 10 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 1 & 4 & 3 \\ 4 & 2 & 1 \\ 1 & 1 & 1 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} -9 & -6 & -8 \\ 7 & 10 & 2 \\ 7 & 3 & 9 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 9 & 7 & 10 & 11 \\ 10 & 9 & 11 & 9 \\ 10 & 11 & 10 & 8 \\ 8 & 8 & 11 & 9 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 4 & 1 & 2 \\ 3 & 2 & 2 \\ 4 & 2 & 3 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} 3 & 8 & 6 \\ -3 & -8 & -3 \\ -6 & -6 & -9 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 8 & 11 & 7 & 10 \\ 7 & 11 & 9 & 6 \\ 11 & 9 & 10 & 10 \\ 10 & 6 & 9 & 9 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 1 & 2 & 2 \\ 1 & 3 & 1 \\ 1 & 4 & 3 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} -3 & 7 & -10 \\ -2 & 6 & -4 \\ 3 & -3 & 8 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.
   (b) Find the eigenvalues for A.
   (c) Find the eigenvectors for A.
   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 9 & 10 & 7 & 9 \\ 10 & 11 & 7 & 8 \\ 6 & 8 & 7 & 6 \\ 9 & 9 & 10 & 8 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 1 & 2 & 2 \\ 3 & 3 & 2 \\ 2 & 1 & 2 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} -10 & 6 & -6 \\ -5 & 7 & -2 \\ 3 & 3 & 2 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 8 & 10 & 10 & 6 \\ 8 & 8 & 10 & 10 \\ 11 & 9 & 10 & 7 \\ 11 & 8 & 10 & 7 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 1 & 1 & 1 \\ 1 & 4 & 3 \\ 4 & 3 & 1 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} 2 & 2 & -7 \\ -5 & 9 & -7 \\ -5 & 5 & -3 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.
   (b) Find the eigenvalues for A.
   (c) Find the eigenvectors for A.
   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 7 & 11 & 11 & 10 \\ 9 & 11 & 7 & 10 \\ 6 & 7 & 11 & 8 \\ 7 & 6 & 7 & 8 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 1 & 2 & 3 \\ 2 & 3 & 4 \\ 3 & 1 & 3 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} 10 & -6 & -4 \\ 8 & -3 & -5 \\ -4 & 2 & 6 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 9 & 7 & 6 & 11 \\ 7 & 7 & 8 & 7 \\ 11 & 9 & 7 & 9 \\ 11 & 9 & 10 & 11 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 3 & 1 & 2 \\ 1 & 2 & 2 \\ 2 & 2 & 3 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} -7 & 9 & 9 \\ -2 & 4 & 9 \\ 2 & -2 & -7 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 6 & 7 & 7 & 8 \\ 11 & 6 & 6 & 10 \\ 6 & 7 & 9 & 9 \\ 8 & 10 & 9 & 9 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 4 & 3 & 4 \\ 1 & 2 & 2 \\ 4 & 1 & 3 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} -9 & -2 & -4 \\ 9 & -3 & 9 \\ 3 & 2 & -2 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 10 & 8 & 7 & 10 \\ 10 & 9 & 9 & 6 \\ 11 & 10 & 8 & 9 \\ 8 & 8 & 9 & 7 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 2 & 3 & 2 \\ 2 & 4 & 4 \\ 3 & 2 & 1 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} -3 & -8 & -4 \\ 4 & 9 & 2 \\ -8 & -8 & -5 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 9 & 9 & 8 & 6 \\ 7 & 6 & 11 & 11 \\ 6 & 8 & 7 & 6 \\ 8 & 6 & 10 & 8 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 3 & 1 & 1 \\ 4 & 2 & 1 \\ 4 & 1 & 3 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} 9 & 2 & 2 \\ -3 & 3 & -3 \\ -3 & -2 & 4 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.
   (b) Find the eigenvalues for A.
   (c) Find the eigenvectors for A.
   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 11 & 9 & 11 & 6 \\ 10 & 8 & 11 & 7 \\ 7 & 7 & 10 & 7 \\ 7 & 10 & 7 & 6 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 3 & 1 & 3 \\ 3 & 2 & 1 \\ 4 & 3 & 3 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} 3 & -3 & 6 \\ 4 & 4 & -2 \\ 6 & -3 & 3 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.
   (b) Find the eigenvalues for A.
   (c) Find the eigenvectors for A.
   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 9 & 7 & 6 & 11 \\ 8 & 7 & 9 & 7 \\ 11 & 6 & 11 & 6 \\ 11 & 9 & 10 & 10 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 4 & 3 & 4 \\ 4 & 4 & 3 \\ 2 & 1 & 4 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} -2 & 3 & 6 \\ 2 & -3 & 4 \\ -8 & 10 & 6 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 7 & 6 & 9 & 9 \\ 7 & 10 & 8 & 9 \\ 7 & 8 & 11 & 11 \\ 10 & 9 & 8 & 11 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 3 & 3 & 2 \\ 1 & 2 & 3 \\ 2 & 1 & 1 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} -8 & -2 & 2 \\ 3 & 3 & 4 \\ -3 & 4 & 3 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.
   (b) Find the eigenvalues for A.
   (c) Find the eigenvectors for A.
   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 11 & 6 & 10 & 9 \\ 6 & 9 & 11 & 7 \\ 8 & 7 & 11 & 7 \\ 6 & 10 & 8 & 11 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 1 & 3 & 1 \\ 4 & 4 & 1 \\ 3 & 2 & 1 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} -7 & -2 & -3 \\ 10 & 5 & 3 \\ 10 & 10 & -2 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 6 & 8 & 10 & 8 \\ 6 & 11 & 6 & 10 \\ 6 & 11 & 7 & 7 \\ 6 & 8 & 8 & 7 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 1 & 4 & 3 \\ 1 & 2 & 2 \\ 4 & 2 & 3 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} -6 & -3 & 6 \\ -2 & -7 & 6 \\ -3 & -5 & 7 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 6 & 10 & 6 & 8 \\ 6 & 8 & 11 & 9 \\ 8 & 8 & 9 & 9 \\ 11 & 6 & 11 & 9 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 1 & 2 & 2 \\ 1 & 3 & 1 \\ 2 & 2 & 3 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} 3 & 5 & 4 \\ 9 & -3 & -9 \\ -3 & 5 & 10 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 9 & 8 & 6 & 10 \\ 6 & 6 & 6 & 9 \\ 7 & 7 & 7 & 7 \\ 7 & 6 & 10 & 6 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 1 & 1 & 2 \\ 4 & 3 & 4 \\ 3 & 1 & 4 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} 4 & 3 & -3 \\ 3 & 3 & 4 \\ 3 & -3 & 10 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.
   (b) Find the eigenvalues for A.
   (c) Find the eigenvectors for A.
   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 9 & 6 & 6 & 7 \\ 9 & 8 & 9 & 6 \\ 11 & 6 & 10 & 9 \\ 11 & 10 & 7 & 6 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 2 & 4 & 3 \\ 3 & 3 & 2 \\ 1 & 4 & 2 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} -5 & 8 & -3 \\ -3 & 6 & -3 \\ 9 & -8 & 7 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 11 & 10 & 7 & 8 \\ 8 & 6 & 9 & 6 \\ 7 & 6 & 10 & 10 \\ 11 & 8 & 10 & 7 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 1 & 3 & 4 \\ 2 & 1 & 2 \\ 1 & 1 & 3 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} 5 & -2 & -8 \\ 9 & -2 & -6 \\ 3 & -7 & -9 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 7 & 8 & 7 & 9 \\ 11 & 10 & 8 & 10 \\ 11 & 10 & 7 & 9 \\ 10 & 11 & 11 & 6 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 3 & 1 & 1 \\ 2 & 1 & 3 \\ 3 & 2 & 3 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} -8 & 4 & 2 \\ -10 & 6 & 2 \\ 3 & -4 & -7 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 6 & 6 & 6 & 11 \\ 6 & 7 & 9 & 8 \\ 9 & 10 & 9 & 9 \\ 10 & 10 & 9 & 9 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 3 & 3 & 2 \\ 4 & 3 & 4 \\ 2 & 4 & 1 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} 2 & -6 & -10 \\ -3 & 3 & -3 \\ 2 & 2 & 8 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.
   (b) Find the eigenvalues for A.
   (c) Find the eigenvectors for A.
   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 6 & 6 & 9 & 6 \\ 6 & 8 & 10 & 6 \\ 6 & 8 & 9 & 11 \\ 7 & 6 & 7 & 11 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 2 & 4 & 1 \\ 1 & 4 & 2 \\ 3 & 3 & 1 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} -7 & -2 & 2 \\ -4 & -5 & 2 \\ -2 & -2 & -3 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 9 & 7 & 6 & 9 \\ 11 & 9 & 7 & 6 \\ 11 & 11 & 7 & 11 \\ 9 & 8 & 7 & 9 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 1 & 2 & 1 \\ 2 & 3 & 3 \\ 3 & 3 & 1 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} -8 & -2 & 2 \\ 3 & -3 & -3 \\ -7 & -4 & -2 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 6 & 10 & 7 & 6 \\ 7 & 6 & 7 & 10 \\ 10 & 10 & 7 & 9 \\ 8 & 10 & 8 & 10 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 4 & 1 & 3 \\ 1 & 4 & 1 \\ 3 & 4 & 2 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} 6 & 3 & 2 \\ -6 & -3 & -4 \\ 6 & -3 & -2 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 6 & 8 & 8 & 11 \\ 8 & 9 & 6 & 6 \\ 11 & 11 & 11 & 9 \\ 6 & 8 & 8 & 9 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 3 & 2 & 4 \\ 1 & 3 & 1 \\ 2 & 3 & 3 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} -4 & 9 & 2 \\ 8 & -3 & 8 \\ 9 & -9 & 3 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 11 & 10 & 10 & 8 \\ 6 & 7 & 10 & 10 \\ 9 & 11 & 8 & 10 \\ 7 & 9 & 7 & 10 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 3 & 1 & 2 \\ 4 & 3 & 2 \\ 4 & 2 & 3 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} 3 & -3 & 6 \\ 6 & -10 & 10 \\ 6 & -5 & 5 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 9 & 7 & 6 & 7 \\ 11 & 10 & 10 & 7 \\ 9 & 6 & 10 & 6 \\ 10 & 10 & 11 & 7 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 2 & 1 & 2 \\ 1 & 1 & 3 \\ 3 & 1 & 4 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} -8 & 10 & 3 \\ -5 & 7 & 3 \\ 2 & -4 & 7 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 6 & 7 & 7 & 6 \\ 10 & 11 & 10 & 6 \\ 10 & 10 & 6 & 6 \\ 8 & 10 & 6 & 11 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 3 & 4 & 2 \\ 2 & 4 & 1 \\ 4 & 1 & 3 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} 4 & -9 & -6 \\ 4 & -9 & -3 \\ 6 & -6 & -9 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 9 & 7 & 7 & 6 \\ 7 & 9 & 9 & 9 \\ 9 & 9 & 7 & 7 \\ 6 & 6 & 11 & 11 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 2 & 3 & 2 \\ 1 & 1 & 3 \\ 2 & 4 & 4 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} 4 & -2 & 2 \\ 7 & 2 & -7 \\ 9 & -2 & -3 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 8 & 6 & 7 & 6 \\ 7 & 10 & 9 & 8 \\ 8 & 6 & 7 & 8 \\ 11 & 8 & 11 & 9 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 1 & 1 & 2 \\ 4 & 3 & 4 \\ 2 & 3 & 3 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} 8 & -9 & -6 \\ 5 & -6 & -6 \\ 5 & -2 & -10 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.
   (b) Find the eigenvalues for A.
   (c) Find the eigenvectors for A.
   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 11 & 11 & 11 & 9 \\ 6 & 9 & 8 & 10 \\ 10 & 9 & 9 & 7 \\ 7 & 6 & 9 & 10 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 3 & 1 & 1 \\ 4 & 2 & 1 \\ 1 & 3 & 2 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} 5 & 2 & -3 \\ 6 & 9 & -6 \\ 6 & 6 & -4 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.
   (b) Find the eigenvalues for A.
   (c) Find the eigenvectors for A.
   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 10 & 8 & 11 & 7 \\ 10 & 10 & 8 & 6 \\ 11 & 8 & 11 & 6 \\ 7 & 9 & 9 & 6 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 3 & 4 & 2 \\ 1 & 3 & 2 \\ 1 & 1 & 1 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} 6 & -6 & 2 \\ 10 & -10 & 2 \\ 3 & -6 & 5 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 6 & 7 & 6 & 9 \\ 6 & 9 & 6 & 7 \\ 9 & 7 & 6 & 9 \\ 11 & 7 & 7 & 8 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 4 & 4 & 1 \\ 4 & 3 & 3 \\ 3 & 2 & 1 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} -3 & -6 & 7 \\ -2 & -3 & -3 \\ -2 & -10 & 4 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 6 & 8 & 8 & 8 \\ 9 & 7 & 8 & 11 \\ 7 & 7 & 11 & 10 \\ 6 & 9 & 8 & 9 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 2 & 1 & 3 \\ 3 & 4 & 1 \\ 3 & 1 & 4 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} 4 & -3 & 3 \\ -10 & -3 & -3 \\ -4 & -4 & -2 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 7 & 6 & 7 & 10 \\ 10 & 9 & 9 & 10 \\ 6 & 10 & 11 & 10 \\ 10 & 9 & 10 & 11 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 1 & 2 & 3 \\ 2 & 3 & 2 \\ 1 & 4 & 4 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} -5 & -5 & -2 \\ -2 & -2 & 2 \\ -9 & -5 & 2 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 7 & 7 & 7 & 9 \\ 9 & 9 & 9 & 10 \\ 10 & 7 & 10 & 10 \\ 6 & 8 & 10 & 9 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 4 & 1 & 1 \\ 4 & 2 & 3 \\ 3 & 3 & 4 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} 3 & 3 & -2 \\ 6 & -4 & -4 \\ 9 & 3 & -8 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 7 & 8 & 9 & 6 \\ 7 & 9 & 10 & 11 \\ 10 & 10 & 11 & 10 \\ 7 & 10 & 9 & 8 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 2 & 3 & 2 \\ 1 & 2 & 4 \\ 2 & 2 & 3 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} -7 & 9 & -7 \\ -3 & 5 & -7 \\ -3 & 3 & -5 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 7 & 6 & 8 & 7 \\ 7 & 7 & 8 & 9 \\ 8 & 9 & 10 & 7 \\ 9 & 11 & 8 & 6 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 3 & 2 & 2 \\ 3 & 3 & 1 \\ 4 & 1 & 2 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} 7 & -9 & -9 \\ 2 & -4 & -9 \\ -2 & 2 & 7 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 6 & 7 & 10 & 6 \\ 8 & 6 & 9 & 8 \\ 10 & 11 & 11 & 6 \\ 10 & 7 & 10 & 11 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 1 & 3 & 1 \\ 3 & 3 & 4 \\ 1 & 4 & 2 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} 10 & 2 & -3 \\ -2 & 5 & 2 \\ 4 & 2 & 3 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 7 & 6 & 6 & 7 \\ 8 & 8 & 10 & 11 \\ 6 & 8 & 6 & 8 \\ 10 & 10 & 7 & 7 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 1 & 4 & 3 \\ 1 & 1 & 1 \\ 4 & 2 & 1 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} -2 & 5 & -5 \\ -2 & -9 & 5 \\ -2 & -2 & -2 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.
   (b) Find the eigenvalues for A.
   (c) Find the eigenvectors for A.
   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 7 & 7 & 10 & 8 \\ 10 & 8 & 10 & 8 \\ 8 & 6 & 7 & 10 \\ 7 & 8 & 10 & 9 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 1 & 3 & 1 \\ 3 & 2 & 1 \\ 4 & 2 & 2 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} -6 & 9 & -7 \\ -2 & 8 & -8 \\ -3 & 6 & -8 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 7 & 6 & 11 & 9 \\ 7 & 8 & 6 & 8 \\ 8 & 8 & 8 & 8 \\ 9 & 6 & 9 & 9 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 1 & 1 & 4 \\ 2 & 1 & 1 \\ 3 & 1 & 3 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} -10 & -6 & 6 \\ 8 & 8 & -4 \\ -6 & -3 & 5 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 9 & 10 & 6 & 8 \\ 8 & 7 & 10 & 9 \\ 10 & 8 & 6 & 7 \\ 11 & 9 & 10 & 9 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 3 & 1 & 4 \\ 2 & 3 & 4 \\ 2 & 1 & 2 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} 6 & -2 & -2 \\ 7 & -3 & 2 \\ -8 & 8 & 3 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 9 & 6 & 11 & 6 \\ 8 & 8 & 6 & 8 \\ 10 & 6 & 7 & 10 \\ 11 & 11 & 7 & 11 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 3 & 4 & 4 \\ 2 & 1 & 3 \\ 1 & 4 & 2 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} 8 & 6 & -6 \\ -6 & -2 & -2 \\ -4 & -2 & -2 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 8 & 11 & 6 & 11 \\ 7 & 6 & 11 & 8 \\ 10 & 9 & 9 & 9 \\ 10 & 10 & 7 & 10 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 2 & 3 & 2 \\ 1 & 4 & 4 \\ 4 & 4 & 3 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} 3 & -8 & 4 \\ 4 & -9 & 2 \\ -3 & 3 & -8 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.
   (b) Find the eigenvalues for A.
   (c) Find the eigenvectors for A.
   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 7 & 6 & 8 & 6 \\ 11 & 9 & 7 & 6 \\ 10 & 6 & 10 & 7 \\ 8 & 6 & 6 & 6 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 2 & 4 & 1 \\ 1 & 3 & 1 \\ 2 & 3 & 3 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} 7 & -2 & 2 \\ -2 & 8 & -2 \\ -2 & 3 & 3 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.
   (b) Find the eigenvalues for A.
   (c) Find the eigenvectors for A.
   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 7 & 8 & 9 & 9 \\ 11 & 7 & 10 & 6 \\ 9 & 8 & 10 & 10 \\ 6 & 10 & 8 & 6 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 1 & 2 & 3 \\ 4 & 3 & 1 \\ 1 & 3 & 4 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} -9 & 6 & 9 \\ 5 & 4 & -3 \\ -4 & 6 & 4 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.
   (b) Find the eigenvalues for A.
   (c) Find the eigenvectors for A.
   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 10 & 7 & 10 & 10 \\ 6 & 7 & 6 & 6 \\ 6 & 9 & 10 & 10 \\ 7 & 6 & 9 & 8 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 3 & 2 & 4 \\ 2 & 4 & 3 \\ 1 & 3 & 2 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} -4 & -2 & -2 \\ -9 & 3 & -2 \\ 8 & -8 & -3 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 6 & 8 & 10 & 6 \\ 10 & 8 & 7 & 11 \\ 10 & 7 & 11 & 8 \\ 11 & 6 & 8 & 9 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 3 & 2 & 3 \\ 2 & 1 & 3 \\ 3 & 4 & 4 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} 4 & -9 & -2 \\ 2 & -7 & -2 \\ 10 & -9 & -8 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 9 & 7 & 8 & 10 \\ 7 & 11 & 8 & 11 \\ 6 & 7 & 6 & 9 \\ 7 & 6 & 9 & 6 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 2 & 4 & 4 \\ 2 & 2 & 3 \\ 1 & 3 & 4 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} 6 & 3 & -2 \\ -5 & 7 & 5 \\ 9 & 3 & -5 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.
   (b) Find the eigenvalues for A.
   (c) Find the eigenvectors for A.
   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 11 & 10 & 9 & 8 \\ 11 & 10 & 9 & 9 \\ 8 & 11 & 10 & 7 \\ 11 & 7 & 9 & 6 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 3 & 2 & 4 \\ 4 & 4 & 3 \\ 2 & 1 & 4 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} -2 & 4 & 4 \\ 4 & -2 & -4 \\ -2 & -2 & -4 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.
   (b) Find the eigenvalues for A.
   (c) Find the eigenvectors for A.
   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 8 & 10 & 11 & 11 \\ 9 & 10 & 11 & 11 \\ 8 & 6 & 11 & 6 \\ 7 & 6 & 10 & 9 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 4 & 3 & 3 \\ 2 & 4 & 1 \\ 4 & 1 & 4 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} 10 & 8 & 4 \\ -3 & -9 & -6 \\ -6 & 6 & 6 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 11 & 9 & 10 & 9 \\ 9 & 10 & 11 & 10 \\ 6 & 8 & 8 & 9 \\ 8 & 6 & 8 & 9 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 3 & 1 & 2 \\ 4 & 4 & 3 \\ 2 & 4 & 1 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} 4 & 3 & 3 \\ -10 & 4 & 10 \\ 10 & 3 & -3 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 7 & 9 & 7 & 8 \\ 7 & 6 & 10 & 9 \\ 7 & 7 & 6 & 8 \\ 9 & 11 & 8 & 8 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 3 & 4 & 2 \\ 2 & 3 & 1 \\ 1 & 4 & 4 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} 5 & -9 & -9 \\ 8 & -8 & -6 \\ 4 & -8 & -10 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.
   (b) Find the eigenvalues for A.
   (c) Find the eigenvectors for A.
   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 6 & 10 & 8 & 9 \\ 6 & 6 & 8 & 9 \\ 7 & 11 & 8 & 8 \\ 9 & 8 & 8 & 10 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 2 & 3 & 1 \\ 2 & 2 & 3 \\ 3 & 4 & 4 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} -3 & 4 & -3 \\ -9 & 10 & -3 \\ -10 & 4 & 4 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 10 & 6 & 11 & 7 \\ 10 & 7 & 11 & 9 \\ 6 & 10 & 11 & 8 \\ 9 & 7 & 8 & 11 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 4 & 2 & 3 \\ 3 & 3 & 2 \\ 1 & 3 & 1 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} 2 & -5 & -5 \\ 6 & -9 & -5 \\ -6 & 6 & 2 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 6 & 8 & 9 & 8 \\ 10 & 6 & 9 & 11 \\ 8 & 10 & 11 & 9 \\ 7 & 11 & 9 & 6 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 2 & 2 & 1 \\ 2 & 1 & 2 \\ 3 & 1 & 1 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} -10 & 6 & -6 \\ 5 & -4 & 10 \\ 8 & -3 & 9 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 11 & 9 & 10 & 11 \\ 6 & 11 & 6 & 11 \\ 8 & 8 & 9 & 9 \\ 11 & 7 & 6 & 11 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 2 & 4 & 3 \\ 2 & 2 & 1 \\ 3 & 4 & 4 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} -8 & 5 & 8 \\ -6 & 3 & 8 \\ -7 & 7 & 5 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 8 & 10 & 11 & 6 \\ 7 & 7 & 11 & 10 \\ 6 & 10 & 6 & 9 \\ 6 & 11 & 6 & 7 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 2 & 3 & 3 \\ 4 & 1 & 3 \\ 3 & 3 & 4 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} -2 & -6 & -4 \\ -2 & -7 & -2 \\ -4 & 6 & -2 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 9 & 9 & 11 & 10 \\ 8 & 8 & 11 & 7 \\ 9 & 6 & 9 & 9 \\ 6 & 10 & 8 & 7 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 3 & 4 & 4 \\ 1 & 3 & 2 \\ 2 & 2 & 1 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} 7 & -2 & -2 \\ 2 & 3 & -2 \\ 3 & -2 & 2 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.
   (b) Find the eigenvalues for A.
   (c) Find the eigenvectors for A.
   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 8 & 7 & 9 & 6 \\ 11 & 6 & 8 & 6 \\ 8 & 8 & 9 & 6 \\ 9 & 9 & 8 & 9 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 3 & 2 & 1 \\ 3 & 1 & 2 \\ 2 & 1 & 3 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} -3 & -9 & 5 \\ -9 & -3 & 5 \\ -5 & -5 & 3 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 9 & 9 & 7 & 7 \\ 7 & 11 & 11 & 6 \\ 10 & 9 & 9 & 7 \\ 7 & 10 & 10 & 7 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 2 & 2 & 4 \\ 1 & 4 & 1 \\ 2 & 3 & 3 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} 6 & 2 & 8 \\ 6 & -7 & 2 \\ -6 & 3 & -6 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 10 & 7 & 7 & 10 \\ 6 & 6 & 7 & 9 \\ 10 & 11 & 8 & 10 \\ 6 & 10 & 7 & 9 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 1 & 2 & 2 \\ 1 & 4 & 3 \\ 4 & 2 & 3 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} -7 & -4 & -2 \\ 10 & 10 & 6 \\ -5 & -8 & -6 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 11 & 7 & 6 & 7 \\ 6 & 7 & 11 & 10 \\ 10 & 7 & 7 & 6 \\ 9 & 9 & 11 & 7 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 1 & 3 & 4 \\ 4 & 4 & 1 \\ 1 & 2 & 3 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} -6 & 5 & -7 \\ 4 & -7 & 7 \\ 4 & -10 & 10 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 11 & 8 & 9 & 10 \\ 8 & 9 & 7 & 9 \\ 11 & 9 & 11 & 8 \\ 9 & 9 & 9 & 10 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 1 & 1 & 1 \\ 2 & 1 & 3 \\ 3 & 1 & 2 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} 9 & 4 & 5 \\ -5 & -2 & -5 \\ -6 & -4 & -2 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 10 & 10 & 7 & 8 \\ 11 & 6 & 8 & 7 \\ 7 & 11 & 6 & 10 \\ 9 & 10 & 7 & 11 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 1 & 1 & 3 \\ 2 & 1 & 1 \\ 1 & 2 & 1 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} 4 & 2 & -8 \\ 7 & -9 & -10 \\ 2 & 2 & -6 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.
   (b) Find the eigenvalues for A.
   (c) Find the eigenvectors for A.
   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 6 & 11 & 9 & 7 \\ 10 & 9 & 8 & 9 \\ 10 & 11 & 9 & 10 \\ 7 & 10 & 10 & 11 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 4 & 2 & 3 \\ 3 & 4 & 2 \\ 1 & 4 & 1 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} -2 & 6 & 3 \\ -4 & 8 & 3 \\ 7 & -7 & -5 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 11 & 8 & 6 & 8 \\ 7 & 10 & 8 & 7 \\ 11 & 11 & 6 & 11 \\ 7 & 10 & 8 & 8 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 2 & 1 & 1 \\ 3 & 1 & 3 \\ 3 & 4 & 1 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} 2 & -10 & -10 \\ -2 & 3 & 9 \\ 2 & 4 & -2 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.
   (b) Find the eigenvalues for A.
   (c) Find the eigenvectors for A.
   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 10 & 8 & 7 & 11 \\ 11 & 8 & 11 & 6 \\ 11 & 9 & 10 & 6 \\ 11 & 9 & 8 & 6 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 3 & 1 & 2 \\ 2 & 2 & 3 \\ 1 & 2 & 2 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} -6 & -8 & 10 \\ -6 & -3 & 6 \\ -5 & -4 & 9 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 7 & 8 & 10 & 7 \\ 6 & 10 & 9 & 8 \\ 6 & 6 & 11 & 7 \\ 10 & 7 & 8 & 6 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 3 & 4 & 4 \\ 4 & 3 & 4 \\ 2 & 4 & 3 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} -4 & -3 & 2 \\ -6 & 3 & -6 \\ -9 & -3 & 7 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 10 & 8 & 11 & 8 \\ 10 & 6 & 6 & 11 \\ 7 & 8 & 10 & 6 \\ 11 & 10 & 10 & 11 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 4 & 2 & 3 \\ 1 & 2 & 1 \\ 2 & 3 & 3 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} -3 & -4 & 10 \\ 3 & 3 & -3 \\ 3 & -4 & 4 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 9 & 9 & 8 & 7 \\ 10 & 11 & 11 & 10 \\ 8 & 7 & 10 & 9 \\ 10 & 6 & 6 & 7 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 2 & 3 & 1 \\ 3 & 4 & 2 \\ 3 & 1 & 1 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} -2 & 6 & -10 \\ -2 & -9 & 9 \\ -2 & -4 & 4 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 11 & 9 & 11 & 11 \\ 10 & 10 & 8 & 10 \\ 8 & 7 & 6 & 10 \\ 6 & 6 & 6 & 9 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 2 & 1 & 2 \\ 2 & 3 & 1 \\ 3 & 1 & 4 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} 10 & 5 & -8 \\ 4 & 7 & -4 \\ 4 & 5 & -2 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 11 & 10 & 9 & 11 \\ 11 & 7 & 7 & 6 \\ 8 & 11 & 8 & 8 \\ 9 & 8 & 8 & 10 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 2 & 1 & 3 \\ 3 & 1 & 4 \\ 1 & 4 & 2 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} -3 & 4 & -2 \\ 4 & -3 & -2 \\ -7 & 8 & 4 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 8 & 7 & 9 & 9 \\ 8 & 6 & 9 & 6 \\ 8 & 9 & 9 & 6 \\ 7 & 11 & 6 & 6 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 3 & 1 & 4 \\ 2 & 3 & 1 \\ 3 & 4 & 1 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} 7 & 6 & 2 \\ -3 & -6 & -3 \\ 2 & 6 & 7 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 7 & 9 & 7 & 7 \\ 8 & 7 & 9 & 7 \\ 10 & 10 & 9 & 10 \\ 10 & 9 & 10 & 7 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 1 & 2 & 2 \\ 2 & 3 & 2 \\ 1 & 1 & 4 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} -2 & -4 & -3 \\ -5 & -7 & -5 \\ -10 & 10 & 3 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.
   (b) Find the eigenvalues for A.
   (c) Find the eigenvectors for A.
   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 9 & 10 & 7 & 10 \\ 7 & 7 & 8 & 8 \\ 9 & 10 & 10 & 8 \\ 8 & 6 & 8 & 8 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 2 & 1 & 3 \\ 2 & 2 & 1 \\ 3 & 4 & 3 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} 10 & -9 & 3 \\ 5 & -4 & 3 \\ 3 & -5 & 6 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 7 & 9 & 11 & 8 \\ 6 & 8 & 6 & 11 \\ 6 & 11 & 11 & 11 \\ 10 & 7 & 8 & 11 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 4 & 2 & 3 \\ 2 & 3 & 2 \\ 1 & 4 & 2 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} 9 & -5 & 6 \\ 6 & -2 & 10 \\ 3 & -3 & 10 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 8 & 6 & 6 & 11 \\ 6 & 11 & 11 & 11 \\ 6 & 6 & 9 & 8 \\ 10 & 6 & 10 & 11 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 2 & 4 & 1 \\ 3 & 1 & 3 \\ 3 & 2 & 2 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} -8 & 10 & 6 \\ -3 & 5 & 6 \\ 10 & -4 & -3 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 8 & 10 & 9 & 10 \\ 6 & 10 & 8 & 6 \\ 11 & 11 & 8 & 8 \\ 11 & 9 & 7 & 11 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 4 & 2 & 2 \\ 3 & 2 & 4 \\ 4 & 3 & 4 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} 2 & -9 & -9 \\ 3 & -8 & -3 \\ 3 & -5 & -10 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 10 & 7 & 8 & 9 \\ 8 & 11 & 6 & 6 \\ 7 & 11 & 7 & 6 \\ 9 & 11 & 9 & 7 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 3 & 4 & 3 \\ 3 & 1 & 1 \\ 2 & 2 & 1 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} -6 & -3 & -9 \\ 10 & 7 & 9 \\ 3 & 3 & 6 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 6 & 10 & 7 & 9 \\ 10 & 8 & 10 & 9 \\ 9 & 9 & 6 & 11 \\ 6 & 6 & 6 & 7 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 1 & 2 & 1 \\ 4 & 1 & 3 \\ 1 & 3 & 2 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} -9 & 4 & -2 \\ -2 & -3 & -2 \\ 5 & -5 & -2 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 6 & 7 & 6 & 9 \\ 7 & 11 & 7 & 9 \\ 11 & 7 & 9 & 9 \\ 8 & 7 & 8 & 9 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 4 & 2 & 3 \\ 3 & 2 & 1 \\ 2 & 2 & 2 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} 4 & 9 & -9 \\ -2 & 4 & 2 \\ -2 & 9 & -3 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 11 & 8 & 8 & 9 \\ 7 & 9 & 8 & 11 \\ 11 & 7 & 9 & 10 \\ 9 & 6 & 6 & 8 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 3 & 4 & 1 \\ 4 & 3 & 1 \\ 1 & 2 & 1 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} 3 & 2 & 6 \\ -3 & -4 & -3 \\ 7 & 5 & -4 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.

   (b) Find the eigenvalues for A.

   (c) Find the eigenvectors for A.

   (d) Is A diagonalizable?

Linear Algebra - Assignment 1
Prof. Roberto Panai

1. Calculate the determinant of A, where

$$A = \begin{pmatrix} 9 & 7 & 10 & 9 \\ 7 & 6 & 8 & 8 \\ 6 & 10 & 6 & 8 \\ 8 & 7 & 11 & 6 \end{pmatrix}$$

2. Find the inverse of A, if it exists, using the Gauss-Jordan elimination. Where

$$A = \begin{pmatrix} 1 & 1 & 2 \\ 3 & 4 & 3 \\ 1 & 2 & 3 \end{pmatrix}$$

3. Let $T : \mathbb{R}^3 \to \mathbb{R}^3$ a linear map and

$$A = \begin{pmatrix} 3 & 10 & -10 \\ -2 & 3 & 2 \\ -2 & 10 & -5 \end{pmatrix}$$

the matrix of T with respect to the canonical basis.

   (a) Calculate $\det(A - \lambda I)$.
   (b) Find the eigenvalues for A.
   (c) Find the eigenvectors for A.
   (d) Is A diagonalizable?