**Assignment 2**

Q1. For the given matrix

Calculate

(1) The characteristic equations of given matrices.

(2) The eigenvalues and eigenvectors of given matrices.

(3) A basis for each Eigenspace of given matrices.

Q2. Find the vector and parametric equations of the plane in that passes through the point =(1,2,4,6) and is parallel to both =(0,1,3,-9)

Q3. Find the vector and parametric equations of the plane in that passes through the origin and is parallel to both =(0,1,3,-9)

Q4. Find the vector and parametric equations of the line in that passes through the point =(1,2,4) and is parallel to both

Q5. Find the vector and parametric equations of the line in that passes through the origin and is parallel to both

Q6. Find the vector and parametric equations of the line in that passes through the point =(1,4) and is parallel to both

Q7. For the given matrices

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Calculate

1. Characteristics matrix
2. Characteristics equation