

MATH 22AL

LAB # 6

20 How to Find Basis for ROW SPACE of AB Using Column Space of $(AB)^t = (AB)'$

Let AB be defined as before. $AB = \begin{bmatrix} 3 & 9 & -7 & -2 & 6 & -3 & -1 \\ 2 & 6 & 0 & 8 & 4 & 12 & 4 \\ 2 & 6 & 5 & 18 & 4 & 33 & 11 \\ 3 & 9 & -2 & 8 & 6 & 18 & 6 \end{bmatrix}$

Note that row space of AB = column space of $(AB)'$.

Use MATLAB to find a basis for the row space of AB consist of row vectors of AB .
Then enter your basis vectors as:

type	% ABV1 = your first row vector of basis of space of AB
type	% ABV2 = your second row vector of basis of space of AB
type	% ABV3 = your third row vector of basis of space of AB

21 How to Find independent Columns of Matrix AB

Let AB be defined as before. $AB = \begin{bmatrix} 3 & 9 & -7 & -2 & 6 & -3 & -1 \\ 2 & 6 & 0 & 8 & 4 & 12 & 4 \\ 2 & 6 & 5 & 18 & 4 & 33 & 11 \\ 3 & 9 & -2 & 8 & 6 & 18 & 6 \end{bmatrix}$

type	ABR = rref(AB)
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To see the Reduced Row-Echelon Form of AB .
Use ABR to find a basis for Column space of AB

Then enter your basis vectors as:

type	% ABW1 = your first row vector of basis of space of AB
type	% ABW2 = your second row vector of basis of space of AB
type	% ABW3 = your third row vector of basis of space of AB

Now type

type	[R1, pivcol] = rref(AB)
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This command will provide you rref(AB) and pivot columns of AB . The columns of AB that are independent and form a basis for the column space.

You can use MATLAB to give you a matrix composed of the independent columns of AB

type	UAB = AB(:,pivcol)
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