Due Date: 22 October 2015

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Determine whether the statement is true or false:

1. Vectors are orthogonal to each other. True
2. . False
3. All linearly independent set in a subspace is a basis for False
4. The transformation, is a linear transformation. True
5. The column space of a matrix is in True
6. If A is matrix then row space of A and column space of A have different dimension. False

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For Each Question, Choose the Correct Answer from the Multiple-Choice List.

1. If and are two vectors in . Then the cross product :

a.

b.

c.

d.

1. Let and *.* The value of is:

4. Let is a basis of and Then the coordinate vector of relative to is:

A linear combination formed by the vectors, and is:

Solve the following questions:

1. If and . Find , where is the angle between and .

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Let be a subset . Find a

is a subspace of

Let

Since , and S is linearly independent.

Then is a basis for .

1. Let ), find the domain, codomain and the image of .

Solution:

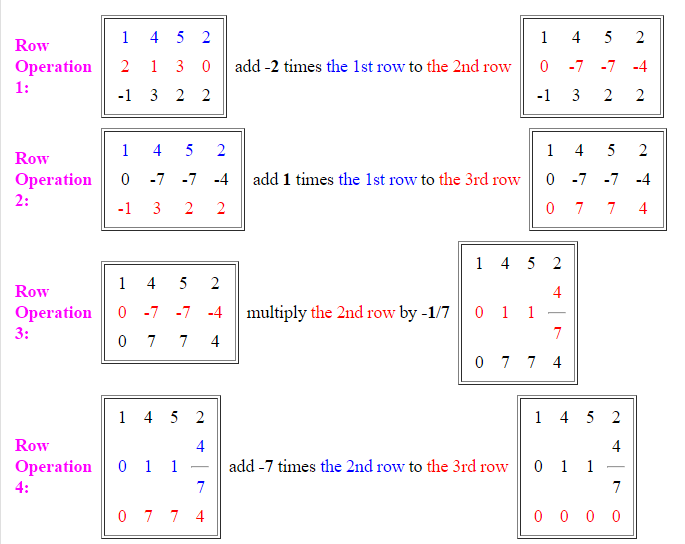
The domain is and the codomain is .

The image of .

1. Given the matrix. Find the basis for Row space of A and its dimension.

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Reducing A to row echelon form



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the nonzero row vectors of R form a basis for the row space of R and hence form a  
basis for the row space of A. These basis vectors are:

and its dimension is 2 (the number of rwos with leading 1 ′s)