LINEAR TRNSFORMATION

Let P and Q be real vector spaces (their dimensions can be different) and let R be a function with domain P and range in Q (written R:P→Q

We say R is a linear transformation if

For all x, y ∈ P, R (x+y) = R(x) + r(y)

For all x∈p , r∈R, R(rx)=rR(x)(R is homogenous)

RANK OF MATRIX

The dimension of the range of a linear transformation is called the RANK

The rank of a linear transformation are related to each other by th equation

 rankT + multy T= dim(domain)

2. $\begin{vmatrix} 1 & 4 & 9 \\ 2 & 7 & 5 \\ 8 & 6 & 3 \end{vmatrix}$

Det (x)=|x|

$Det(x)=1\begin{vmatrix} 7 & 5 \\ 6 & 3 \end{vmatrix} - 4 \begin{vmatrix} 2 & 5 \\ 8 & 3 \end{vmatrix} + 9\begin{vmatrix} 2 & 7 \\ 8 & 6 \end{vmatrix}$

= 1|21-30|-4|6-40|+9|12-56|

=-9-4(-34)+9(-44)

=-9-132-39

=-537

Non singular matrix

3

T:x→y

X=e,f,g,h,I,j,k

Y=2,4,6,8,10

X	y
e	2
f	4
g	6
h	8
I	10
J	codomain
k	
domain	