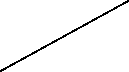
Equation of a Straight line, 3d plane and Hyperplane (n Dimension):



Equation of a straight line:

y = mx + c

Where,

m = slope (In unit movement in the x axis, what is the unit movement in the y axis)

c = intercept

Other notations:

y =

ax + by + c = 0

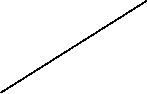
Operating,

by + c = -ax

by = -ax -c

y =

Multiple dimensions:



Equation of the straight line:

Where w1 and w2 are coefficients

Equation of a straight line:

For three dimensions or axes:

We will not draw a straight line instead we will draw a 3d plane

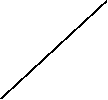


, Where

W = , X =

For n dimensional plane:

Equation of a straight line passing through the origin:



b = 0

Equation of a plane is given by the notation pi

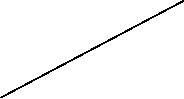
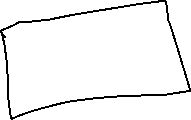
Equation of a plane = : , since we have considered our line is passing through the origin

W = , X =



w.x = = = 0

= 0, when



Conclusion: W will always be perpendicular to the plane