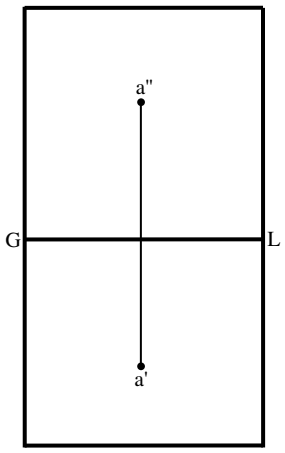
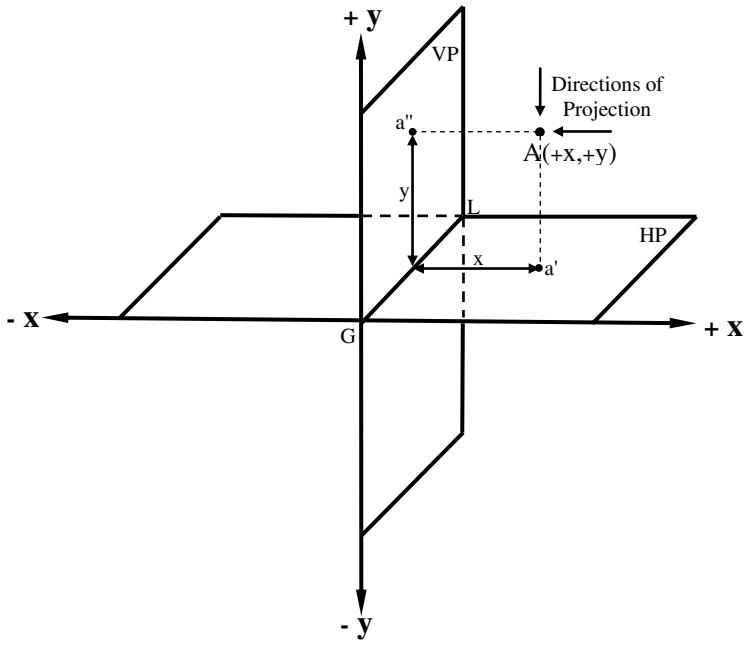
Lecture (2)

Projection of a Point

Representation of the Elevation and Plan for a point: a point in space is located relative to the VP and HP according to its coordinates. The (x) coordinate determines dimension of the point from the VP, while the (y) coordinate determines its dimension from the HP. For the representation of a point, it may fall in any one of the four quadrants (or dihedral angles), depending on whether the sign of the coordinates of the point is either positive or negative. To specify the Elevation and Plan for any point, a line is drawn perpendicularly to both the VP and HP. The intersection point with VP represents the Elevation and with HP represents the Plan. This will be illustrated in the following examples:



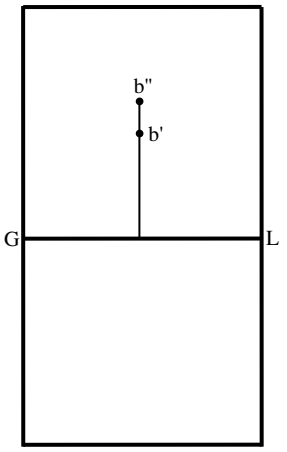
Descriptive Representation

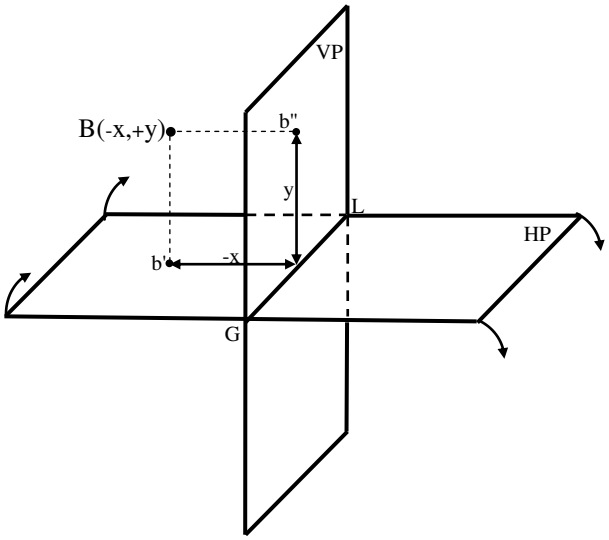


Pictorial Representation

Both the (x) and (y) coordinates are positive; therefore, point A falls in the 1st quadrant. The two views namely Elevation and plan of any point must fall on a line forms a right angle with GL.

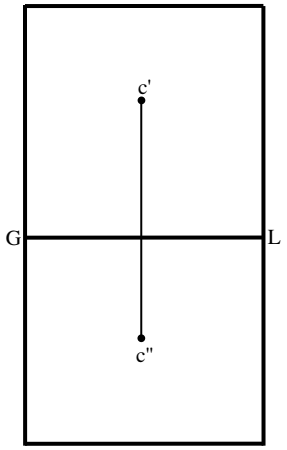
The (x) coordinate is negative and the (y) coordinate is positive; therefore, point B falls in the 2nd quadrant.

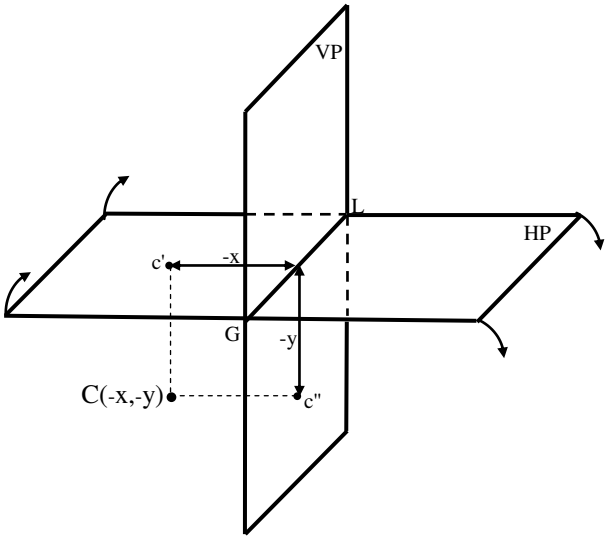




Descriptive Representation Pictorial Representation

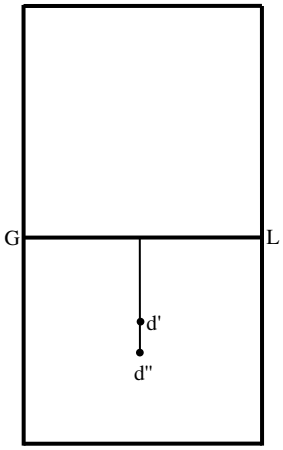
Both the (x) and (y) coordinates are negative; therefore, point C falls in the 3rd quadrant.

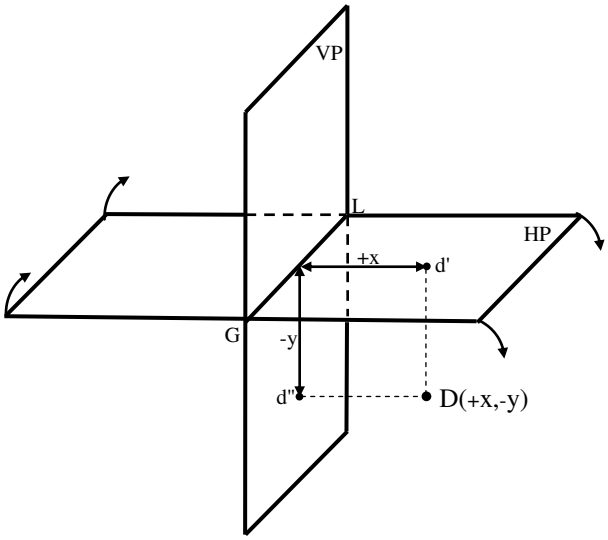




Descriptive Representation Pictorial Representation

The (x) coordinate is positive and the (y) coordinate is negative; therefore, point D falls in the 4th quadrant.

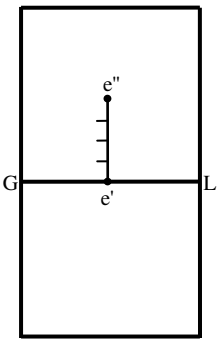




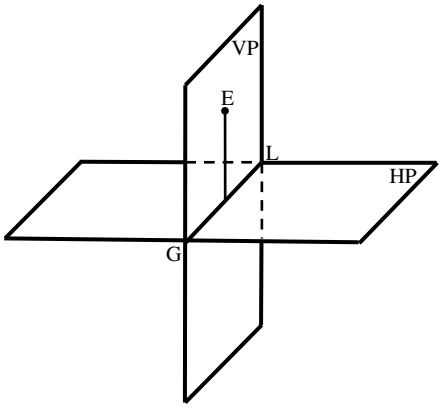
Descriptive Representation Pictorial Representation

Obviously, if one of the coordinate of a point is zero this indicates that the point lies on one of principal planes of projection.

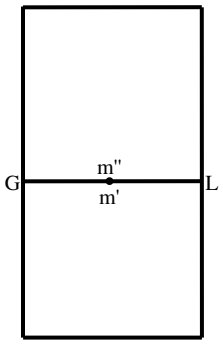
Example: Draw the Elevation and Plan of the following points and show their positions in space. (Points: E(0, 4), M(0, 0) , N(-3,0)).

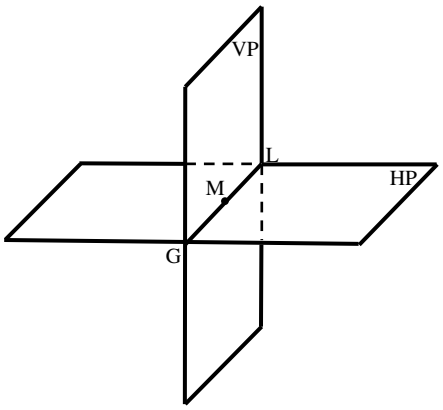


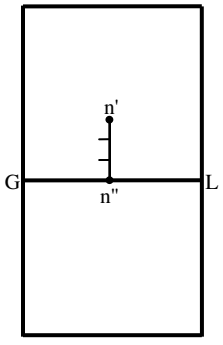
The Elevation and Plan

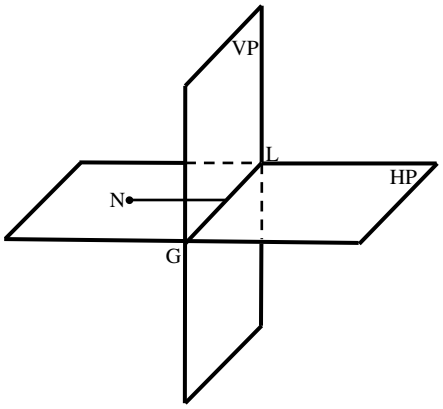


The Position of Point in Space









Q: Draw the Elevation and Plan of the following points and show the pictorial representation for each of them. (Points: A(3, -2, 4), B(3, -3) , C(-3,0)).