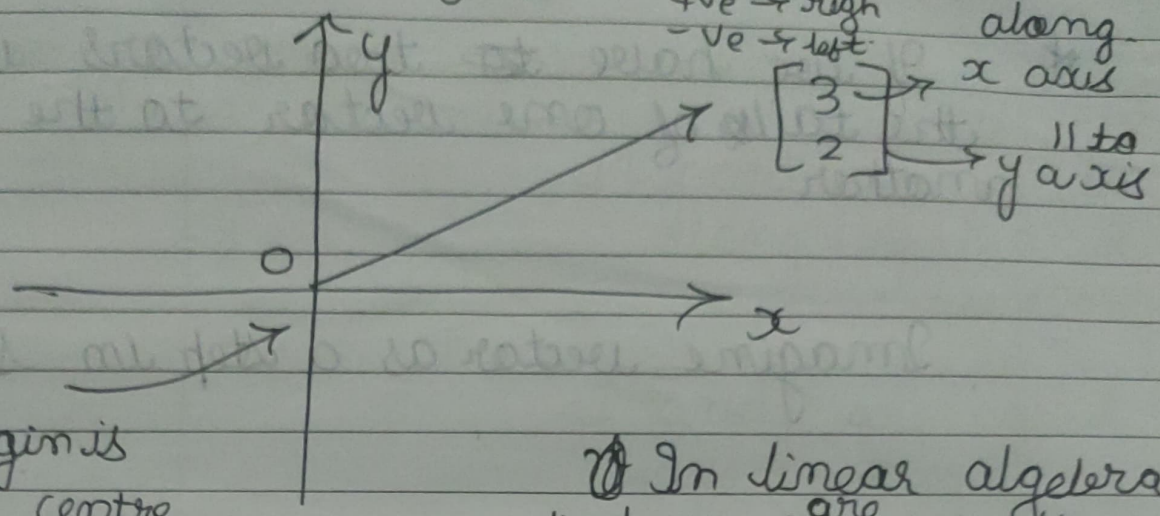
Linear Algebra.



Origin is centre of space or root of all vector.

In linear algebra vectors are usually rooted (start) at origin.

→ Every pair of co-ordinates give one vector and vice versa.

Now, for 3D space there is another coordinate (Z co-ordinate)

$$\begin{bmatrix} 2 \\ 1 \\ 3 \end{bmatrix}$$

→ distance to be move along x axis

→ distance to be moved || to Y axis

→ distance to be moved || to Z axis.

to add

* If we have two vectors we move the tails of one vector to the tip of another.

Imagine vector as a step in space.

⇒ Multiplication by a number.

If factor is less than 1 Eg $0.3\bar{v}$ where $\bar{v}$ is vector, it is shrinked. while it is streched if the factor > 1.

If for a -ve factor the process is the same but in opposite direction.

This process is called scaling and the factor which is multiplied is called scalar.

$$2\begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 2x \\ 2y \end{bmatrix}$$

Each component is multiplied.