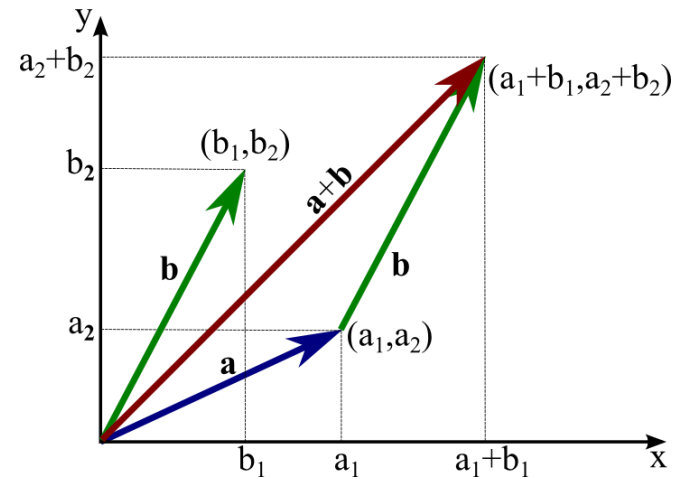


Siddhardhan

Linear Algebra - Vectors

Math for Machine Learning



Vectors – Physics Based Approach:

Vectors – Physics Based Approach:

Speed = 50 km/hr

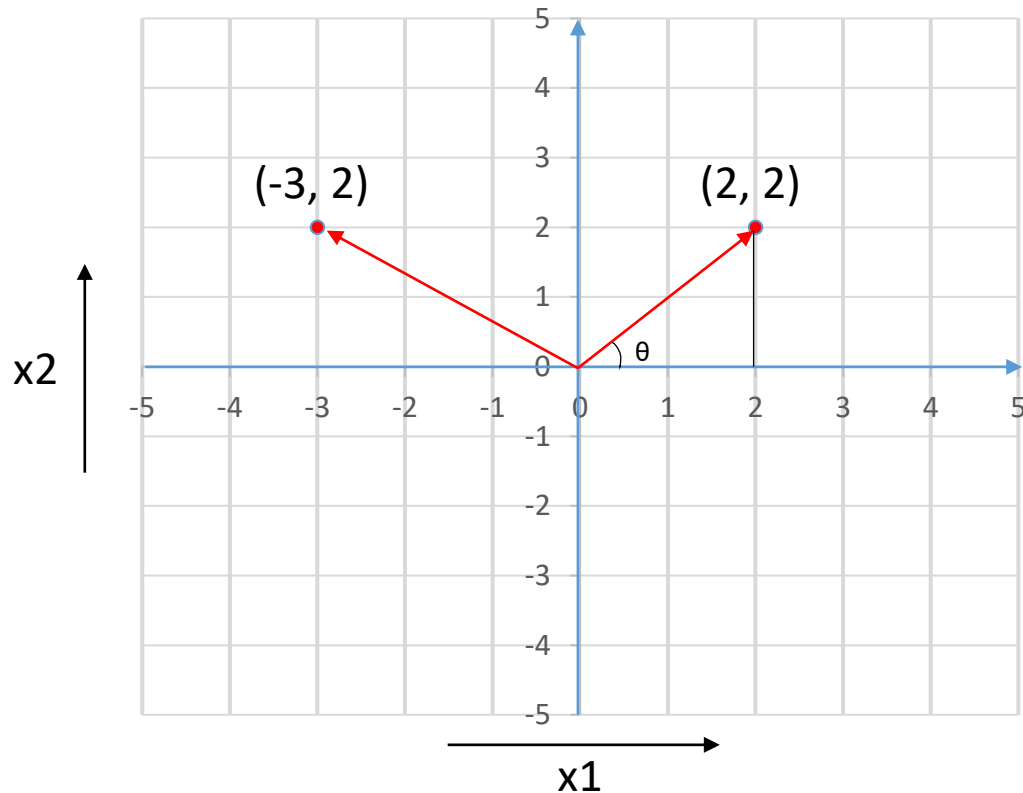
(Scalar Quantity)



Velocity = 50 km/hr North

(Vector Quantity)

Vectors – Mathematical Approach



Vectors have:

1. Magnitude
2. Direction

Vector 1 $\rightarrow (2, 2)$

Vector 1 $\rightarrow 2\vec{i} + 2\vec{j}$

Magnitude of Vector :

$$\sqrt{x_1^2 + x_2^2}$$

Magnitude of Vector 1:

$$\sqrt{2^2 + 2^2} = \sqrt{8}$$

Direction of Vector 1:

$$\tan \theta = \frac{2}{2} = 1$$

$$\theta = 45^\circ$$

Vectors – Computer Science Approach

Scalar

24

Vector

$\begin{bmatrix} 2 & -8 & 7 \end{bmatrix}$

row

or
column

$\begin{bmatrix} -6 \\ -4 \\ 27 \end{bmatrix}$



Work Experience & Salary

$\begin{bmatrix} 5 \\ ₹ 5,00,000 \end{bmatrix}$

$\begin{bmatrix} 10 \\ ₹ 10,00,000 \end{bmatrix}$