

Module 1

Tuesday, April 21, 2020 10:34 PM

Linear Algebra Module #1


Example: 2 apple + 3 bananas = 8
10 a + 16 b = 13


$$\begin{bmatrix} 2 & 3 \\ 10 & 16 \end{bmatrix} \begin{bmatrix} a \\ b \end{bmatrix} = \begin{bmatrix} 8 \\ 13 \end{bmatrix}$$

matrix vectors

Vectors

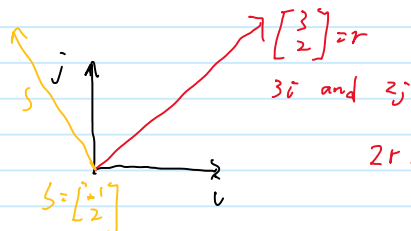
list of attributes of an object

house  120 sqm²
2 bed rooms
1 bath room
\$150,000 $\Rightarrow \begin{bmatrix} 120 \\ 2 \\ 1 \\ 150 \end{bmatrix}$

addition  two main operations of vector: addition, scalar multiplication


$r+s = s+r$
direction does not matter

Scalar multiplication



$$2r = \begin{bmatrix} 2 \times 3 \\ 2 \times 2 \end{bmatrix} = \begin{bmatrix} 6 \\ 4 \end{bmatrix}$$

Properties: Associative
 $(r+s)+t = r+(s+t)$

house example:  $\begin{bmatrix} 120 \\ 2 \\ 1 \\ 150 \end{bmatrix}$ sqm
beds
baths
\$

$$2 \begin{bmatrix} 120 \\ 2 \\ 1 \\ 150 \end{bmatrix} = \begin{bmatrix} 240 \\ 4 \\ 2 \\ 300 \end{bmatrix}$$