

Vectors # L1.1

- often we encounter data in a table.
- A vector can be thought as a list. It could be columns or rows

SA: (1, 2, 3, 4, 5)

row vector / matrix

or, komi: $\begin{bmatrix} 1 \\ 2 \\ 3 \end{bmatrix}$ column vector

- It can be used to perform arithmetic operation lists such as the table columns or rows

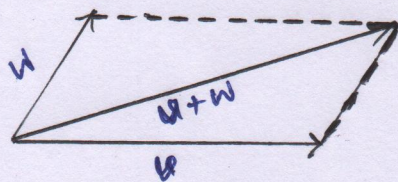
ex, Arun 3 kg rice & 2 kg dal }
Neela 5 kg rice & 6 kg dal } \rightarrow 8 kg rice
8 kg dal

$$(3, 2) + (5, 6) = (8, 8)$$

- Addⁿ of vectors - It is component-wise in the list
- scalar multiplication - $x + x = 2x = 2(x)$
- Point $(a, b) \equiv$ vector $(a, b) \equiv a\hat{i} + b\hat{j}$

visualization: arrow from the origin to (a, b)

- We can add 2 vectors by joining them head to tail or by parallelogram law.



- vectors in \mathbb{R}^n are lists with n real entries.

vector with n entries \equiv vector in $\mathbb{R}^n \equiv$ Points in \mathbb{R}^n

- A vector has magnitude (size) and direction

- velocity, acceleration, force

