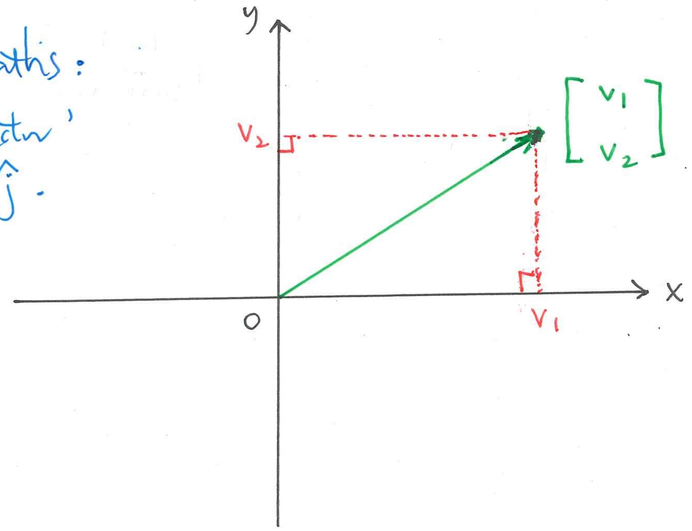
Geometric interpretation.

The column vector $\begin{bmatrix} v_1 \\ v_2 \end{bmatrix}$ is identified as the point with coordinates (v_1, v_2) in the 'coordinate plane' $\mathbb{R}^2$.

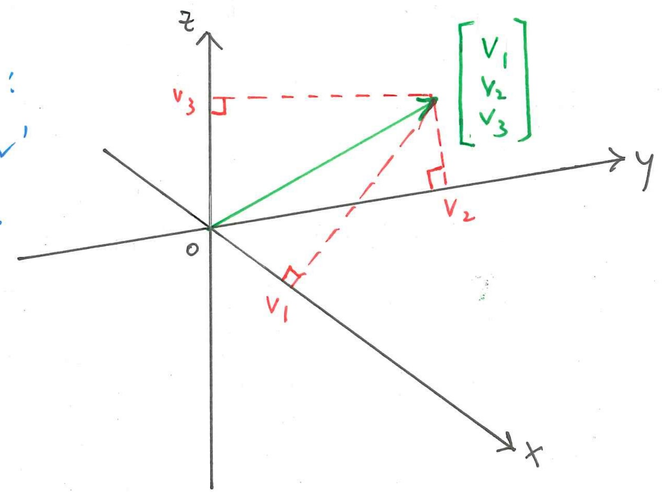
School maths: 'position vector' $v_1\hat{i} + v_2\hat{j}$.



The collection of all column vectors of size 2 is identified as the entire 'coordinate plane' $\mathbb{R}^2$.

The column vector $\begin{bmatrix} v_1 \\ v_2 \\ v_3 \end{bmatrix}$ is identified as as the point with coordinates (v_1, v_2, v_3) in the 'coordinate space' $\mathbb{R}^3$.

School maths: 'position vector' $v_1\hat{i} + v_2\hat{j} + v_3\hat{k}$.

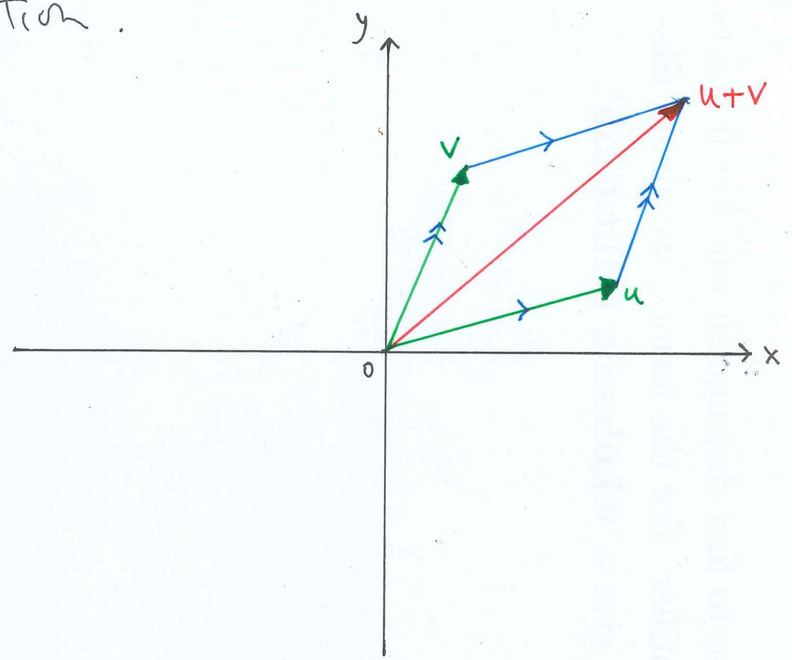


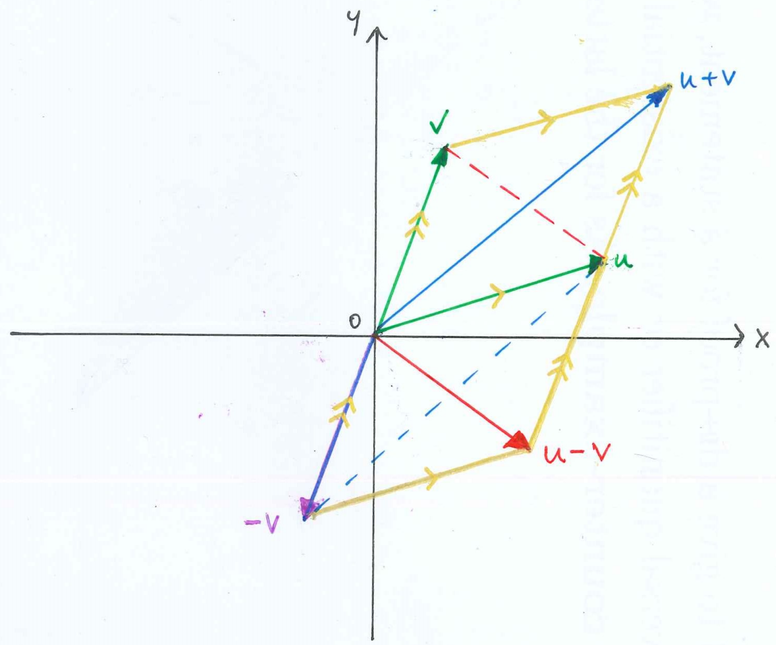
The collection of all column vectors of size 3 is identified as the entire 'coordinate space' $\mathbb{R}^3$.

Et cetera.

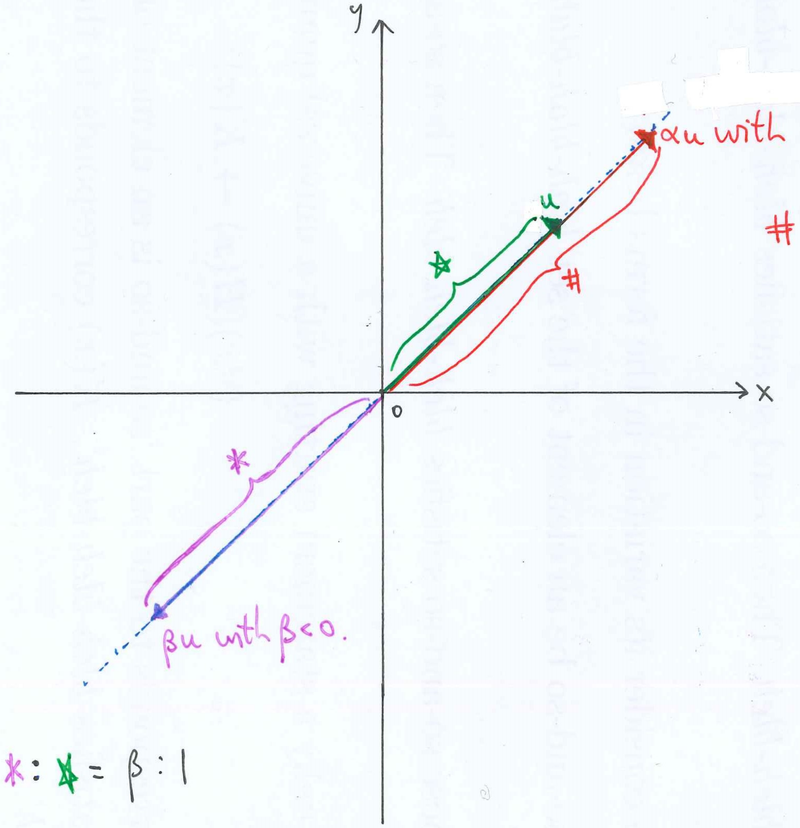
Geometric interpretation for column vector addition and scalar multiplication

addition.





scalar multiplication.



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