Lecture 3, Jan 17, 2022

Vector Spaces, Continued

- Consider: $\{ (x,y) \mid x, yin\mathbb{R} \}$ with the operations defined as $(x_1, y_1) + (x_2, y_2) \equiv (x_1 + x_2, y_1 + y_2 + 1)$ and $\alpha(x,y) \equiv (\alpha x, \alpha y + \alpha - 1)$
  - Zero is $(0, -1)$
  - Inverse is $(-x, -y - 2)$
  - Actually distributive
  - Since all axioms hold this is actually a vector space