

Finding Geometric Representations of Vector Spaces

Example 1

$$A = \text{set}\{[\lambda, \lambda + \mu^3, \lambda - \mu^3] : \lambda, \mu \in \mathbb{R}\}$$

$$[\lambda, \lambda + \mu^3, \lambda - \mu^3] = [\lambda, \lambda, \lambda] + [0, \mu^3, -\mu^3]$$

$$[\lambda, \lambda + \mu^3, \lambda - \mu^3] = \lambda[1, 1, 1] + \gamma[0, 1, -1]$$

$$\text{Where } \gamma = \mu^3$$

Example 2

$$B = \text{set}\{[\lambda^2, -\lambda^2, 0] : \lambda \in \mathbb{R}\}$$

$$[\lambda^2, -\lambda^2, 0] = \gamma[1, -1, 0]$$

$$\text{Where } \gamma = \lambda^2$$

$$\text{Set}(\vec{0}) = \text{Subspace}$$