**Source**:

# 1 | Definitions

## 1.1 | TODO group

A set and binary operation that satisfies Group Properties

- Closed
- Identity
- Inverse
- Associative

## 1.2 | TODO field

A set and two binary operations: the primary (addition) and secondary (multiplication) that ”mostly” satisfies group properties for both operations, and are commutative and distributive. It must be a group under the primary operation and a group under the secondary operation except without a secondary inverse for the primary indentity.

## 1.3 | TODO non-singular matrices

# 2 | Connections

## 2.1 | TODO connect direct sum and linear independence

## 2.2 | TODO matrices to represent complex numbers

# 3 | Computation

## 3.1 | TODO Find the determinant of matrices

## 3.2 | TODO Find equations of lines and planes using cross product and dot product

# 4 | Derivations

## 4.1 | TODO properties of the determinant

## 4.2 | TODO inverse of a 2x2 matrix