

MAT1841 - Continuous Maths for Computer Science
Exam Revision Notes

Vectors, Lines and Planes

1. Vector Operations

- Properties of vectors, representation and definition
- Linear independence
- Equality
- Stretching (Scalar factors)
- Addition
- Subtraction
- **Vector dot product**
 - Length of vector
 - Unit Vectors
 - Scalar Projections
 - Vector Projections
 - Angle between two vectors
 - Test for orthogonal vectors
- **Vector cross product**
 - Area of a parallelogram
 - Test for parallel vectors
 - Find orthogonal vector

2. Lines in 3D space

- Find all points on a line joining 2 vectors
- Linear representation of vector
- Find the equation of the line joining two points
- Symmetric form
- Test if two lines intersect or are parallel

3. Planes in 3D space